

End of term: our CLASS OF '88 students sum up their impressions of a first year in higher education - money, new friends and interests, flat-hunting and exams (page 12-13).



ARTHUR MILLER seems an absolutely American artist, yet his *Death of a Salesman* enjoyed the longest run of any play in China in its season at the Beijing People's Theatre last year. Lynne Truss discusses the problems in exporting the American Way eastwards and reviews Miller's newly-published production diary (page 14).

Monday's general election in ISRAEL is more than a party contest. On the result depends the whole shape and future of the Jewish state. **Stellman** and **Barry Shekner** report on an unfamiliar political system and the main issues involved (page 15).

Is tradition a dead principle? **Stephen Heath** looks at the "steady challenge" of **RAYMOND WILLIAMS** to all the fixed categories of cultural study (page 17).

Looking back down the road to serfdom. **Anthony Quinton** reviews John Gray's study of **FRIEDRICH HAYEK's** thought (page 19).

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NEXT WEEK

How should science be taught? **John Richardson** reviews **Stephen Michael Kosslyn's** *Ghosts in the Mind's Machine* Commonwealth education ministers' conference OU funding crisis

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Reform of the NAB

The present review of the constitution and functions of the National Advisory Body was over almost before it had begun. Sir Keith Joseph announced back in April that the NAB was to be re-established as a permanent body which decisively prejudged the very issue that many of its critics wished to dispute. For them the permanency of the NAB should have been the very nub of the present review.

In fact very little debate has taken place. In the short run that may not matter. The NAB has established itself in a very short time as an indispensable piece of planning machinery - to such an extent that it is now difficult to imagine how we managed before it was set up. On the broad strategy for local authority higher education it has got it (almost) right and it continues to display an administrative energy that is all the more remarkable because its staff is so stretched.

However, the present constitution and operation of the NAB have thrown up anomalies and difficulties which today seem minor but may become greater obstacles later. They are: the relationship between the NAB and its trans-binary rival the UGC; the relationship between committee and board; the make-up of the board; the status of "the chairman's study group"; the effective absence of the promised "third tier" of subject groups; and the desperate shortage of professional staff.

The first of these difficulties, the relationship between the NAB and the UGC, may fall outside the scope of the present review but it is of critical importance. Many people in universities are alarmed at the NAB's role in the DES as a stalking horse to obtain greater leverage over university policy. They suspect that for ministers and civil servants who take the long view the importance of the NAB experiment rests less in its present achievement in sorting out the polytechnics and colleges than in the potential model it offers for the overall planning of higher education in the future.

In a more detailed sense the NAB/UGC relationship is also of crucial importance to the future of the administrative style. Should the NAB behave as it is expected to be a permanently parallel agency in keen, but stable, rivalry with the UGC - or should it be trying constantly to throw out trans-binary tentacles? If this fundamental question about the future direction of the NAB remains unresolved, its detailed work and policies may be seriously inhibited. The issue of the NAB's permanency may have been resolved in the sense that those destructive critics who wanted to strangle the experiment at birth have been rebuffed, but it remains very much an open question in the more positive context of future higher education policy.

The second and third difficulties, the relationship between committee and

board and the constitution of the board, reflect the NAB's most significant weakness, the failure of the board to establish itself as the academic powerhouse of the new system. In Bagehotian terminology the board has failed to establish itself as the "efficient" part of the NAB's constitution. Instead that part has been usurped by others - the committee in the case of the rationalization of nautical studies, the secretariat in the preparation of the framework for the 1984/85 planning exercise, and more recently the chairman's study group on tricky issues like town planning and the future viability of smaller diversified colleges.

The source of the board's weakness is that it is based on the model of the UGC, however undeliberately. The assumption is that the members of the board, although representative of the various polytechnic and college interest groups rather than appointed individuals by the Secretary of State, should be able to generate the kind of academic consensus which it is assumed the UGC is able to produce. It is an inappropriate model, not least because the UGC itself has faced great difficulty since 1981 in matching up to it. The NAB has an explicitly political role which again until 1981 the UGC could pretend to ignore. The non-university sector is much more heterogeneous which makes it much more difficult to establish any sensible academic consensus. And the NAB, unlike the UGC, is not formally underpinned by the untested expertise of subject committees.

The final three difficulties, the anomalous status of the chairman's study group, the lack of strong subject committees, and the shortage of staff, all reflect and compound this central weakness. The study group has emerged as an official executive committee in the hope presumably that its more considered (and more secret?) decisions can give some shape and direction to board discussions. But the effect is likely to be to drain the full board of its already limited vitality and relevance, caught between the committee which naturally reserves to itself the really hard political decisions and the study group where all the detailed fixes are now done.

The lack of stronger subject committees is also a serious deficiency although the NAB can never afford to place as much emphasis as the UGC on the disciplinary dimension. Some good work has been done of course; the technical and data group has established itself as a key bit of NAB machinery and the continuing education working group is about to produce a report at least as good and maybe better than that produced by the UGC in the spring. But both are perhaps examples rather than bottom-up peer-review committees. It is the latter

which the NAB now needs.

The NAB's foundations in the system must now be strengthened by creating strong and enduring subject committees. First, the active consent of those who teach in polytechnics and colleges must be engaged; that can only be done by Council for National Academic Awards style peer review. Second, it must be able to discriminate on grounds of quality and so needs high quality academic intelligence. The CNA has now made it clear that it will not agree to serve as a mercenary in that capacity; the inspectorate is too likely to turn out to be a Trojan horse; the NAB's own general staff of board members and officers cannot do the job by occasional visitations. Third, the NAB's strategic policies cannot be devised and sustained in a vacuum; their detailed implementation will demand a sensitive knowledge of the strengths and weaknesses of individual colleges and courses.

So what should be done? Here is a quick four-point plan: (1) the present bi-cameral constitution of the NAB should be scrapped, the committee and the study group merged to form a single central body with its local authority members being offered an effective veto, the minister should retreat to a largely ceremonial role as chairman and Mr Ball should become vice (and effective) chairman of the NAB; (2) the secretariat should be strengthened, its present entirely inadequate number of professional staff doubled and more detailed decisions should be formally devolved to them (they will take them anyway!); (3) a proper system of subject committees based on peer review and of more administrative subcommittees (eg on continuing education or relations with industry) should be established. The present NAB is too inbred; it is dominated by the top-level managers of the non-university sector and so is obsessed by their short-term managerial perspective. It needs to allow more room for the views of ordinary teachers and of non-higher education interests like the schools and industry; (4) some clear and early indication should be given of the Government's intentions for the planning of higher education across the binary line (next winter's green paper?).

The last is the key. If there is to be a quick and radical trans-binary solution to the problems of higher education planning with sweeps away both the NAB and UGC in their present forms, the NAB's present constitution is perfectly adequate. It will not be badly affected by bureaucratic sclerosis for the next five years or so. But if, as seems more likely, the present binary policy is to be maintained until the end of the century and beyond, the reform of the NAB's structure must be tackled at some stage - and no one should be more conscious of this need than its friends.

Commonwealth retrial

The United Kingdom will be in the dock for the fourth time in as many years when Commonwealth education ministers begin their meeting in Cyprus at the weekend. The charge, once again, will be that the Government is neglecting its obligations both to its partners in the Commonwealth and to international scholarship by persisting with its fee policy for overseas students. It is a measure of the depth of feeling on the subject, not to mention other countries' perception of the British response, that fees are again likely to dominate the conference.

Mr Peter Brooke will be the third representative of the Government to face the music. Four years ago it was Mr Mark Carisle who sought to reassure the critics, some vociferous like Malaysia, others more reserved, that Commonwealth students would be given the best deal Britain could afford. While making no promises and stressing that full-cost fees would have to be implemented, Mr Carisle put his name to a communiqué which recommended "reasonable levels" of fees and a system of exemptions for certain categories of students.

Mrs Thatcher, too, has faced criticism twice at heads of government meetings. On both occasions she accepted communiques which re-emphasized the importance of student mobility and made proposals for mitigating the effects of differential fees. In New Delhi, only last December, these included a commitment to consultations with other Commonwealth countries before fees were raised "substantially" in future.

Yet all there is to show for such apparently good intentions is the so-called Pym package of 240m of aid spread over three years, the lion's share of which is going to help students from only three countries: Hong Kong, Malaysia and Cyprus. Even that had to be pressed out of ministers by international pressure and will run out in 1986. No announcement has been made about its continuation and the indications are that a much reduced scheme will be introduced in its place. Already the value of the package has been all but wiped out by the fee increase announced a matter of weeks later. The New Delhi meeting. The 9 per cent increase was far in excess of inflation

and called into question the whole basis of supposedly full-cost fees, as well as the good faith of those signing the declaration made by the heads of government.

Sir Keith Joseph made no bones about the determination to retain full-cost fees when he addressed education attaches in London this month. He told them bluntly that he could not offer much hope of change because the Government was not prepared to ask the public to pay for "indiscriminate subsidies". His department, with little obvious evidence, expects overseas numbers to hold up in any case.

It is to be hoped, though hardly expected, that Mr Brooke will take a more constructive line in Nicosia. He will find that both Australia and New Zealand are considering reversing their discriminatory fee policies, and that the Pym package is very far from satisfying third world critics. The lessons which led to that package being approved surely cannot be forgotten so quickly. It will be to Britain's long-term disadvantage to slip back into educational protectionism.

Laurie Taylor



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Length of appointment: To appointment will be for three years from October 1 1981, but may be extended for a further four years subject to satisfactory reports from staff and students (based on questionnaire returns) and the degree to which this department is successful in beating off the present absurd rival claims for staff at present being made by the frankly megomaniac head of the Department of Economics.

Salary: The university is at the moment promoting a staff-salary cutting scheme. This is still under review, but based on current calculations (ie the need to avoid 10% redundancies in the coming two years) the estimated salary for this position will be £22 per week. In line with present university policy, however, superannuation contributions are not required for periods of less than one month.

UGC status: Ilchester appears in the "average cuts" section of the UGC league table and no references to "phasing out" or "reducing or discontinuing" the Department of Social Studies were contained in the letter which is more than one can say about the Department of Psychology.

Accommodation: Despite present campus-wide accommodation difficulties arising from structural defects in the fabric of the university building it is anticipated that the successful candidate will be housed in full covered office space. (A chair, usually available but at heating and lighting provision is at the discretion of the department conservation officer.)

Further particulars: Further particulars are available from the head of department price £12.50 (Well worth the cost of a departmental building, honestly, with a departmental building like ours you have to grasp it by the neck). Applications (26 copies, straws). Applications should be sent to the appointments committee (of whom names of six referees, all of whom must at present be in full-time academic posts (sorry - no industry) should be sent to the Temporary Registrar, Cornwall. The university's Redubbing First may be included in the same envelope. First published on September 25, 1981.

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Hotline to Sir Keith: the secretary of state for education and science Sir Keith Joseph listens in to information about Liverpool University, on a stand at the Association of University Teachers' exhibition in the House of Commons. Sir Keith opened the exhibition, "Britain and Its Universities" with displays about every university in the country this week. He is pictured here with AUT deputy general secretary Mr John Akker (left) and Mr Shane Guy, Liverpool University administrative secretary.

NAB urges action on continuing education

by Maggie Richards

Positive action from grassroots through to government to ensure the growth of continuing education in the public sector and beyond is being urged by the National Advisory Body. The 41 recommendations published by the NAB continuing education group include an appeal to institutions for a determined attitude towards continuing education and pleas to government for additional resources to meet provision.

On the financial side the group believes that a target of a 25 per cent increase in cash for part-time courses should be set over the next three years. As a first instalment a 10 per cent increase amounting to £15m should be forthcoming for 1985/86.

The group asks that the Department of Education and Science conducts an urgent review of financial support arrangements for full-time mature students, as it finds the present system discriminates against late entrants. It also urges the Council of Local Education Authorities to provide a more co-ordinated and coherent approach to discretionary awards.

In recommending moves towards a system of paid educational leave for part-time students, the group suggests the immediate adoption of a pro rata system of grant payment for both part-time and full-time courses comes in for criticism, with the group recommending that the DES re-examine the whole fee structure within higher education. In the short term, fees for part-time students in all sectors should be lowered.

One issue which the group highlights is the disparity between fees charged by conventional universities, public sector institutions and the Open University. All interested parties should combine to produce a consistent pattern, the report says.

In the past experience vocational sector courses should be self-financing, and profit-making where this is feasible, but serious consideration should be given to the possibility of providing tax relief incentives for both employers and employees. The Government's recent Continued on page 3

Brooke attacked on fees by Commonwealth

from John O'Leary

NICOSIA

International criticism of Britain's full-cost fees policy for overseas students reached a new level of intensity this week at the Commonwealth Education Ministers' meeting in Cyprus.

A succession of ministers from Africa, Asia and the Caribbean accused the Government of endangering the very existence of the Commonwealth by persisting with its policy. But Mr Peter Brooke, under secretary for higher education, offered no concessions.

The tone was set by Sir Shridath Ramphal, the Commonwealth Secretary-General. In an unusually direct speech at the opening of the conference, he singled out Britain's latest fee rise as evidence that the Commonwealth had moved backwards, not forwards, on the question of student mobility. Serious, direct harm was being done to many poor and small states by the charging of high fees, he said.

"I look on educational interchange as a sort of 'Stalinist' in the campaign for world order," he said. "If the principle of internationalism in education filters now, then nothing is safe from self-centred destructive nationalism." In the meeting itself, the attack was led by the minister of education for Zimbabwe, Mr Dzogani Mutumbuka, who said that student mobility was a matter of life and death for developing countries. He pleaded with Britain to reverse its policy and warned that very soon there would be no Commonwealth if the possibility of studying in the developed nations was denied. He accused the Government

of pushing aside Commonwealth people and giving preference to the EEC.

The Nigerian, Kenyan and Jamaican ministers were among many to criticise British policy specifically. Others, like the Indian minister of education Mrs Sheila Kaul, were equally scathing about the practice of charging discriminatory fees, but did not mention Britain by name.

Mr Brooke acknowledged later that the criticism had been forthright but ruled out the possibility of a lower fee for Commonwealth students. Any additional money for overseas students would come through targeted schemes like those introduced through the Pym package of £40m student aid.

In his speech to the conference, Mr Brooke said that the total cost of studying in Britain was now comparable to that in other Western countries and the introduction of institutional discretion over fees was likely to bring more diversity in fee levels. He said the conference should acknowledge that a trend existed towards high fees and efforts should be made to harness this tide, rather than try to reverse it.

However, he was able to announce both the continuation of aid schemes due to expire in 1986 for at least another year, and a slight increase in the number of Commonwealth scholarships funded by Britain. Thanks mainly to the offer of another 200 scholarships by Canada, the overall target of expanding the Commonwealth Fellowship and Scholarship Plan from 1,000 to 1,500 places was exceeded at the conference.

Stability and mobility, page 10

DES officers oppose equal treatment

by Karen Gold

Senior civil servants from the Department of Education and Science are resisting proposals by the National Advisory Body to treat universities, polytechnics and colleges as equals.

DES members of the NAB board at its latest meeting this week said they could not support phrasing in the proposed NAB long-term strategy paper which implied that universities and public sector institutions were of equal quality.

They also said they could not support the proposal that all institutions should be funded equally per degree student for teaching purposes, though not for research, at the paper argues.

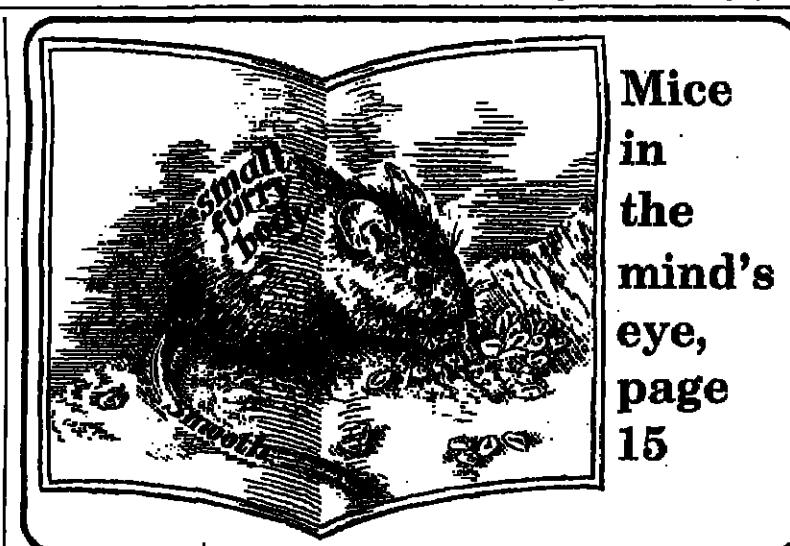
The paper, which has been considerably re-drafted, also proposes an extension of access by allowing students with only one A level to qualify for diploma courses. That too was opposed by the DES. The paper will be considered by the NAB committee early next month.

The board meeting, which lasted all day and still failed to complete its agenda, also failed to agree on the fate of the one diversified college proposed for closure by the NAB chairman's study group, De La Salle College, Manchester. In a very close vote, the board agreed to postpone a decision on the Catholic college until the autumn.

Of the 11 other colleges whose viability was questioned by the chairman's study group, seven are still threatened. The NAB teacher education group has been asked by the board to look closely at the numbers and viability of Bishop Grosseteste, Charlotte Mason, Harfordshire, North Riding, Rolle, West Midlands and Westminster.

A report by a Conference of University Administrators working party, *Boosting University Income* examines some of these themes and others, and is essentially a manual for institutions wanting to increase their income. They suggest a British Universities Marketing Board for attracting overseas students, although they warn against accepting people just because they can afford the fees.

"Disturbing" comment has been heard from some American universities that candidates who can afford the fees are never turned down by certain institutions, among them some of even the highest reputation.



Mice in the mind's eye, page 15

How universities can cash in on alternative funding

by Ngaio Crequer

Two reports published this week explore ways the universities could attract private funds and so increase their independence from government.

The report of a committee chaired by Dr John Burnett, vice-chancellor of Edinburgh University, set up by the Committee of Vice-Chancellors and Principals suggests four areas where alternative funding could be increased: commercial exploitation of ideas and resources, donations by graduates, industrial support, and contributions by students.

But it also warns that the need to maintain academic standards might mean refusing to accept some alternative funds.

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They suggest a British Universities Marketing Board for attracting overseas students, although they warn against accepting people just because they can afford the fees. "Disturbing" comment has been heard from some American universities that candidates who can afford the fees are never turned down by certain institutions, among them some of even the highest reputation. The report lists ways of boosting

income, including the provision of short courses, letting facilities and grounds, approaching the 1,500,000 living British university graduates and approaching industry and commerce. The Burnett report estimates that if alumni in Britain gave on the same level as their American counterparts, about £20m a year could be raised.

The report says it could be argued that the only significant source of additional funding is the student-parent contribution. There could be changes in student fees, with universities charging different amounts.

The committee also considered a loan scheme where students would repay through PAYE as an earnings related graduate tax. It could be funded by Treasury stock. It urges the Government to consider the matter and decide what to do.

Industrialists told the committee that companies would not donate money to universities unless it was tied to specific projects directly benefiting them. But general funds might be obtained for broadly defined purposes, such as encouraging engineers to remain in universities to teach. Industry would not merely substitute funds withdrawn by Government grant. The report also reveals the fact that even Government departments refuse to pay the full cost of overhead payments for commissioned research work.

Earning power, page 12

Butcher plan to reverse brain drain

An attempt to change the climate to encourage more home-grown information scientists and lure skilled staff back from abroad to keep Britain competitive was made yesterday by publication of the first Butcher report on skill shortages, writes Ngaio Crequer.

Mr John Butcher, under secretary of state for industry, said: "This is a major initiative between the department of education, industry and industry itself to make a major and urgent breakthrough."

His report calls for a new partnership with industry which will include donations of expensive equipment to higher education, the creation of IT companies involving participation by Government and academics, key executives as visiting professors, opportunities for more consultancy

Details, page 4

DON'S DIARY

MONDAY

Have been thinking of trying to write another Don's Diary for some time but, although I frequently seem to spend unmanageable portions of my working week in slowly-moving Inter-city 125 trains, my journeys do not seem to have the essential globe-trotting quality of the real scholar. Some months ago a close friend, trying, I think to get closer, flicked over the pages of my work diary searching wearily for a space. Inquired perceptively, "Why do all your gray trains seem to end up in places like Scunthorpe or Blackburn? I wish I knew."

Those of my readers who regularly travel - usually at someone else's expense - to academic gatherings in Paris, New York, or even in Bahrain or Hongkong, are unlikely to be impressed by the fact that I am writing this at Dublin airport as I wait for a delayed flight back to Manchester. The purpose of the journey as required on the very detailed questionnaire which must be completed by all travellers to and from Ireland was to give a paper on changing patterns of work and marriage at an international conference of heads of marriage and family advice agencies.

Spent a few hours sight-seeing in Dublin with a... (collective noun?) of psychotherapists. Almost frightened to approach the Henry Moore statue of entwined figures in the ground of Trinity College for fear that they will collectively auto-destruct in an orgy of conflicting perceptions and counter-interpretations.

TUESDAY

Meanwhile... back at the Pond Street Site - the very words will convey to the perceptive reader how great a distance divides my own dear alma mater from the cloistered grounds of Trinity College - the examination scripts are piling up again and my first task this morning will inevitably add to their number. Walk over with a colleague to start the sociology exam for first year students on the social science degree. We share the same examination hall/converted gym with a group of first year students following some currently favoured combination of business / computing / technology / engineering and - by the look of their shoulders - hang-gliding.

When they are let in they make for their desks in silent determination while our students, to form and form damagingly conforming to prevalent poly-stereotypes, tumble in, greeting one another loudly and chatting until the papers are given out. Old habits die hard and my initial training in invigilation etiquette took place in a teacher training college where reading or marking was forbidden and the sub-zero temperatures in the exam room forced you out on patrol to keep warm. As I wander up and down the rows to "our" side I am struck by the differences between these two groups of students. Nearly all the hang-gliders are 18 or so and there are very few women while the other side of the room is filled with a motley collection of young and "mature", women and men, black and white. I smile benignly, observing a somewhat smugly, I confess - that their diversity symbolizes the best about polytechnics, wishing that the hang-gliders too came in a greater range of shapes and sizes.

WEDNESDAY

I was teaching till 9pm - the part-time MA in Women's Studies has no exams so we are continuing till the very end of term - and that always makes for a late night as I return home "high" from some of the most thought-provoking teaching of the year. At 11pm my immediate neighbourhood seems to be winding down for the night but I am wide awake and

ready for anything. One of my colleagues often goes out to a disco after her evening teaching and I begin to see why.

Forgot to look in my work diary before I left last night so I drift through all the getting up routines nursing a diffuse anxiety about missing an early morning appointment which flares into full-blown panic when the phone rings. An oily reporter from a local press agency wants further details about a television programme I took part in recently. By calling me "darling" and "my love" and letting me know that he thinks that it is wonderful that "the ladies" are now writing books (imagined) and appearing on television he manages to make my stomach go so far into reverse that I have to terminate the call abruptly.

When he rings back 10 minutes later, I firmly explain that if he wants to make my headway with "the ladies" or even conduct a civil telephone interview, reform is needed. He listens to my highly directive advice without argument and we then discuss the programme sensibly. He departs. Sadly I realize that back in the newsroom he is probably making as much capital over his side of the story as I am here.

THURSDAY

I am always fascinated by the way people's intellectual and research interests evolve, by the mixture of history, unconscious goals and personal preoccupations, pragmatism and serendipity which creates "expertise" and gives us custodianship of particular fields (perhaps it would be more in keeping with prevailing polyculture to call them "allotments") of knowledge. In my own case, my colleague David Clark's departure for Aberdeen led to a study of oil-worker's wives so we began to talk more about work and marriage - living in Sheffield makes it impossible to ignore the domestic effects of unemployment and suddenly I find myself the author of speculative paper on such topics.

In some respects my own working life would be a lot more comfortable without such insights. As I become increasingly curious about the way in which women and men's personal and work lives interrelate I have become more conscious of the inter-relationship of my working environment. It's not just that there are so many of them, so few of us especially in high places. It is not even that some of them deserve permanent preservation as such fine specimens of full blown nineteenth-century chauvinism. It is much more insidious, infinitely more wearing and, I think, greatly exacerbated by the "cuts". Let me explain. While academics, chiefly but not exclusively in universities, have spelt out the preservation of academic freedom, polytechnics have burgeoned as we constantly restructure, relocate, reorganize, and resubmit our revised course programmes (the current in-jargon is "suites").

As the source of continuity in our everyday working lives are undermined there is less tolerance of diversity, especially near the top. The dominant style is now depressingly monochrome. Successful applicants for promotion are "keen", "thrusting", surely a very male metaphor on an image much favoured by the catering department, "hungry". Shoptalk is less of flourishing, contented students, books written or even read, works of art completed or admired, more about how much money someone has "brought into" the poly-or of gladiatorial confrontations, with the universities suffering a similar problem - their origins are, after all, the same - a letter received, this morning reminding me of the essential differences. The organizer of a university-based conference where I am speaking in September wanted details of the "addresses" where I can be contacted during the "long vac" - I've got news for you. For most of us in polys it's business as usual during the medium-length vac (six or seven weeks).

FRIDAY

Why is there still so much work left when little of the week remains?

Jacqueline Burgoyne

The author is reader in applied social studies at Sheffield City Polytechnic.



Butcher: "hard guessimate"

Executives on loan in IT scheme

by Ngaiio Crequer

The key element of the first Butcher report into information technology skills shortages, published yesterday, is a new partnership between industry and higher education.

According to the report, produced under the chairmanship of John Butcher, under secretary of state for industry, industry is ready to supply key executives as visiting professors and to help with the supply of lecturers to teach new graduates.

It will provide consultancy and employment opportunities for academics to enable them to increase their earnings. It will commission universities and polytechnics to provide conversion, updating and development courses.

Very expensive equipment will be given as loans or gifts to higher education which ordinarily institutions could not possess. They will soon be invited to identify their needs.

Industry has also offered to establish IT Training Companies with equity participation by companies, academic institutions and Government. One of the reasons for this would be to try to lure back "brain drain" emigrants and attract foreign skilled IT staff.

There will also be increased sponsorship of undergraduates and post-graduates on relevant courses, and more opportunity for industrial placement.

The Butcher committee was set up in April to discuss the effects of IT skill shortages on British competitiveness. The report accepts an estimate by the Alvey Directorate that there will be a shortfall of 1,500 people in 1984 rising to 5,000 in 1987/88.

But the minister emphasized to *THE TIMES* this week that this was only a "hard guessimate". It was impossible, he said, to calculate the demand from non-IT industries and the figures could be double or even treble those given.

The report deals only with the graduate problem. A second report will be issued in the autumn after the committee has examined shortfall among technicians.

The report says there is a clear shortfall of graduates, "additional graduate manpower with IT skills above and beyond the expansion already planned will be required for the rest of this decade and possibly beyond."

They propose an increase in the number of first degree places in appropriate disciplines, and in the number of conversion courses, and an expansion in upgrading and updating courses. They want this to be considered in the context of the "switch" to science and engineering which the Government is now examining in detail.

Graduates most in demand will be electronic engineers and computer scientists but the report stresses there is a growing need for those with more flexible skills, as technology advances. The report says, "Inaction in the face of a balance of payments deficit of over £2 billion in IT products, and in the face of continuing shortages of skilled IT manpower, is unacceptable."

Principal post

Mr Alan Aldridge, assistant secretary (manpower) of the Association of District Councils, is to take over from Mr Ron Hayward at the Committee of Vice-Chancellors and Principals. He will be assistant secretary (salaries and industrial relations) from October.

Inservice training 'should be priority'

by Patricia Santinelli

Inservice education and training is to become a priority area for universities and colleges, if the Secretary of State for Education accepts recommendations made this week by the Government's advisory body on teacher training.

The Advisory Committee for the Supply and Education of Teachers says in its draft advice that this will be necessary because its proposals for the future planning and implementation of Inset call for an even greater commitment than at present from higher education institutions.

It follows that the strength of commitment required needs to be recognized by their respective funding bodies. Accordingly the Secretary of State should identify Inset as a priority area in his guidance to the University Grants Committee, and the National and Welsh Advisory Bodies.

The committee's final advice is to be sent to Sir Keith Joseph, once the chairman of ACSET and its subcommittees have ensured that none of the recommendations could be politically sensitive. For example, some members were anxious not to be seen as instructing the UGC or the NAB. ACSET then hopes that Sir Keith will issue their advice for public consultation in the autumn.

The committee is also recommending that higher education institutions should continue to be centrally funded as regards one term or more full time Inset courses or their part time equivalent. In addition such funding should

include a contribution for development work.

ACSET had considered recommending an end to central funding, proposing that employing local education authorities should bear the cost of Inset activities in higher education institutions. But it decided that to set application of this rule would make it impossible for universities and colleges to plan provision in future years.

It is recommending, however, that the cost of shorter courses and education activities taking place in higher education institutions should be met through fee income in future. The level of the fee would be agreed between individual providing institutions and the client local authority.

Agreement on fees would be reached through the area Inset committees which ACSET recommends should be set up as the new mechanism to bring together local authorities and providing institutions.

The main function of the 20 area committees would be to act as "brokers" in securing a match between Inset needs of authorities which could be met from within their own provision and that made by universities and colleges as well as other agencies.

It stresses that the committee could also play another role such as identifying centres of excellence in the region, and play a part in the approval of courses.

ACSET recommends that each area committee should contain one or more higher education institutions.

Hull allows eight physics students to resit finals

by Karen Gold

Eight physics students at Hull University who failed their final exams are to resit them, after a special university committee of inquiry found that they had not been properly advised on the academic weaknesses.

Mr Frank Mattison, the university registrar, said that the committee was also preparing a report to the university senate for the beginning of next term suggesting changes in exam arrangements. This was the first time he had been allowed to resit for honours, he said.

The committee of inquiry was set up after protests about the failures from the students union. Lindsay Easton, the union president, said that the students concerned had been given no indication that they were going to fail.

All university regulations required students to know after their Part I exams whether they had passed or failed and whether they were allowed to take honours, he said. Some departments told their students more than that, but the physics department had not.

Remove barriers, says MSC

A call for the elimination of unnecessary barriers and academic entry qualifications not relevant to training has come from the Manpower Services Commission this week.

The MSC policy statement, on the modernization of occupational training which is the first objective of the National Training Initiative, was drawn up in consultation with the Department of Education and Science and the Further Education Unit.

The MSC says that such action will be necessary if access to training and vocational education is to be improved, although it does acknowledge that substantial progress has already been made in some industries.

"But improvement means removing unnecessary barriers to training, persuading employers to base recruitment on recognized levels of competence and reviewing - in discussion with professional bodies - the removal of academic entry qualifications when they are not relevant to the training in question," the statement says.

The second key objective is to modernize occupational training to ensure that it is cost effective and relevant to the jobs available. One way of achieving this, the report says, is to reduce the length of training, improve content and methods and introducing flexibility to meet individual needs.

But it stresses that to achieve this, employers, unions and industry must be encouraged to agree on the standards of competence required for particular jobs and collaborate closely with education and training providers to supply the skills needed.

The third objective the MSC recommends is the development of testing and assessment systems to provide objective measures of competence acquired through training. To achieve this, appropriate methods of testing which take into account understanding, experience and practical skills, as well as knowledge are required.

The study is intended to start in the autumn and was proposed by the MSC. It wants to get a clearer and quicker picture than has been available hitherto, to the Young Training Scheme, further education, employment or unemployment.

The commission wants to avoid the embarrassment that followed the withdrawal of trainees to the YTS last year when it was unable to explain it.

Karen Gold reports from the Council of Local Education Authorities' conference in Newcastle Sir Keith's hopes for ACSET Unanimous opposition to White Paper

The future shape of the National Advisory Body will be announced in the next week, Sir Keith Joseph, Secretary of State for Education and Science, told the conference. The announcement is expected to come in a written answer to a Parliamentary question, before Parliament rises next Wednesday.

Sir Keith's entrance was met with subdued applause after he crossed teachers' pickets calling for speedier arbitration in their dispute and scuffles during which two protesters were arrested for trying to block his car.

His speech dealt with moves towards establishing a national curriculum at secondary level; a development from his recent decisions on standardizing school examinations at 16. He hoped higher education would soon give support to the proposed AS levels (half A levels) which would widen the subjects taken by sixth-formers, he said.

The programme for raising standards in schools also called for substantial professional development among teachers, for which inservice training must be responsible, he said. He hoped the Advisory Council on the Supply, Education and Training of Teachers would be bold and imaginative, he added.

Asked what the education world should make of the questioning of the Open University on alleged Marxist bias, Sir Keith said he made no apology for the investigation.

"The OU received a number of complaints. They did not respond to them. They say their rules precluded them responding to complaints without documentation."

"We are not trying to tell them what to do. We are passing on complaints together with documentation."

Sir Keith was welcomed to the conference by Mrs Nicky Harrison, the chairman of the CLEA and also of the

Association of Metropolitan Authorities' education committee. In her opening address, she pointed to arguments between central and local government over legislation on rates and metropolitan authorities. She also referred to the work of Her Majesty's Inspectorate, which has just published a highly critical report of education in the borough of Haringey, where she chairs the education committee.

The manner of publication of HMI reports had to be handled with great sensitivity, she said. "It's far easier to make pointed criticisms, even when the complaints are based on sound professional judgments, than to heal broken relationships and damaged aspirations."

"What happens in my authority can happen in yours tomorrow. If we can hold the service together, it's because we believe in what we are doing. But more and more we have to ask: who speaks with us for education?"

The unanimous opposition in principle to the loss of 25 per cent of non-advanced further education was clear. All of non-advanced further education, not just 25 per cent, was at

stake, said Mr Fred Riddell, (Lab, Nottinghamshire). The case against the colleges, when the White Paper criticized their courses for lacking relevance to employers, had never even begun to be made, said Mr Neil Fletcher, (Lab, Inner London). The idea of training for jobs raised the question, "What jobs?" said Mr Steven Jones, (Lab, Sheffield).

The local authority associations must continue to seek an alternative to the proposals, said Mrs Judith Walpole, (Con, Norfolk). It is possible to resist central government, said Mr Brian Sams (Con, Bexley) pointing to his own authority's retention of selection at 11-plus. MSC's existing involvement in further education already made long-term planning very difficult, said Mrs Mavis Peart (Con, Sutton).

The CLEA conference passed resolutions calling for comparable salaries for all those teaching 16 to 19-year-olds, whatever institution they were in, and for students to receive the necessary amount of travel expenses.

But a resolution proposed by Ealing to reduce the necessary one year's notice of redundancy for further education teachers in order to make it possible to make staff redundant within two or three months was withdrawn because of national negotiations.

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Steady tempo: jazz musician Don Rendell has been taking students through their paces at Goldsmiths' College, London. Mr Rendell, a flute, clarinet, tenor and soprano saxophone player, has been associated with Stephan Grappelli, Woody Herman, Billie Holiday and Stan Kenton. In his spare time he is a tutor for Goldsmiths' school of adult and community studies, coaching the Goldsmiths' Big Band to near professional standards and encouraging the more amateur members of the Goldsmiths' Concert Band.

School-leaver study planned

Ministers are expected to approve within a few weeks the first joint study by the Department of Education and Science and the Manpower Services Commission on the destination of 16-year-old school-leavers.

The study is intended to start in the autumn and was proposed by the MSC. It wants to get a clearer and quicker picture than has been available hitherto, to the Young Training Scheme, further education, employment or unemployment.

The commission wants to avoid the embarrassment that followed the withdrawal of trainees to the YTS last year when it was unable to explain it.

Aston unions threaten strikes over notices

Campus unions at Aston University will call lightning strikes from August 1 if the university carries out its threat to compulsorily dismiss staff.

The university has said that redundancy notices will be served on that date to non-academic staff where there are staff surpluses. Those at risk are about 40 technicians.

Staff will be selected "according to the criterion of programme need". Heads of department have been holding discussions with staff considered to be at risk of redundancy selection, to identify redeployment or retraining possibilities.

Staff were recently sent A or B letters. Those with B letters were told there would be no opposition if they wished to apply for voluntary redundancy. Those on the A list were told

they would be refused.

Some transfers from A and B letters, and vice versa are being considered. All recipients of B letters will then be told that if there are not sufficient volunteers for the voluntary schemes, some of them will receive redundancy notices.

The campus unions, led by the Association of Scientific, Technical and Managerial Staffs, will hold lightning strikes if the dismissals go ahead.

ASTMS is also calling on national support and will be urging action in other universities.

Mr Frank Hunt, ASTMS branch officer said the union was also considering taking selective action in vital departments. Further action will be considered at the time, according to the circumstances.

The university has said that although it has balanced its books in the last three years, haphazard departures of staff have led to a maldistribution.

The university has also published the report of a pro-chancellor's study group. It recommends that contracts for new academic staff should be subject to termination "if there is, or is likely to be, severe overall financial exigency within the university".

Council would decide and the number dismissed would depend on the financial shortfall. Selection would take into account "programme need and individual performance".

Contracts could also be terminated where "there is a discontinuance of programmes, whether mandated by financial exigency or not". The report will go to senate next term.

Beloff building

The University of Buckingham's newest £750,000 student residence was opened this week by Tun Mollammed Suffian, former Lord President of the Courts of Malaysia. The 6-story bedroom building is named Beloff House after Lord Beloff, the first principal of the then private University College, at Buckingham.

Record for women graduates

by Karen Gold
Numbers of women university graduates reached record levels last year, with a notable increase in science and engineering, according to the latest statistics published by careers and appointments services.

The proportion of women passed 40 per cent for the first time, reaching 41 per cent in 1983, compared with 39 per cent in 1982. Women graduates in applied science increased significantly, though they still only comprised 2 per cent of graduates in those subjects, but that compares with a fall of 4 per cent in the proportion of female arts graduates – the area of traditional preference.

Unemployment after graduating was also lower among women than men, with the total down 2 per cent from last year's record total of 13 per cent. There was an increase in graduates taking short-term employment after leaving, and in jobs involving buying and selling.

Graduates in all subjects improved their employment rates, but arts and social studies graduates did better than applied science graduates. The proportion of graduates leaving for full-time training fell again, mainly because of the reduction in teacher training places.

The major changes are an increase in the number of graduates entering banking, finance and insurance, and a fall in education, industry and accountancy. Those entering scientific research and development continued to decrease, although the proportion of women increased by 61 per cent on a very small base.

Changes in the number of women in higher education were also the subject of a paper considered by the National Advisory Body Board this week. The paper was commissioned after fears that the NAB strategy of increasing and protecting science and engineering, the areas with fewest women students, and cutting back arts and social science areas, would in effect discriminate against women.

NAB projections for 1984/85 in women first-year students on the basis of 1982/83 women recruits to each type of course show a marked reversal in the well-established pattern of an increasing number of women recruits

every year. Women first-year students would fall by almost 2 per cent – the same size as the increase in women students in the current year, and against the overall increase in first-year students of 2.5 per cent. "This effect is caused almost entirely by the shift between programmes," the paper says.

But it then continues to offer an alternative projection, which takes the trend of increases in the proportion of women students and applies them to each of the subject areas. In that case, the proportion of women students would increase – by about 0.7 per cent – though still not as much as the total increase in first-year students. The paper says it considers this the more likely picture, thereby assuming that the increase in women studying non-traditional subjects will continue.

University Graduates 1983, Summary of first destination and employment, available at £1.65 from the Central Services Unit for University and Polytechnic Careers and Appointments Services, Crawford House, Precinct Centre, Manchester M13 9EP.

One-track research endorsed by ESRC

by Paul Flather

A bold plan designed to link a large chunk of social science research over the next five years around a single theme – change in contemporary Britain – was endorsed by members of the Economic and Social Research Council last week.

The theme forms a key part of the council's 1985/86 budget plan, and would account for some £400,000 or one-third of the council's uncommitted research funds that year, rising to twice that in each of the two following years. Broad principles of the theme were discussed at the council's meeting last week at the Civil Service College in Sunningdale, Berkshire, with each of the six multi-disciplinary committee chairmen presenting a short paper explaining how the theme would be tackled.

The plan was devised by Sir Douglas Hague, chairman of the ESRC, who believes that social scientists must gear up to play their full part in assisting the British economic recovery by studying some of the key issues raised by rapid social and economic change.

The discussion included caveats, for example the need to retain a "proper balance" between initiating new ideas and responding to ideas from the academic community, and the need to make clear that the entire research programme was not being subject to this theme.

Professor Raymond Hilsley, chairman of the social affairs committee, again warned about the complexity of studying such an issue, and the dangers of over-selling the likely results produced by social research.

In general however the plan was endorsed, with Professor Ernest Gellner, now professor of social anthropology

at Cambridge University, stating that a "backbone" theme was far more useful than complete freedom. However he wanted the council to adopt a more international outlook.

Extracts from committee papers: Economic affairs: theme will be reflected in £500,000 given over to macroeconomic modelling, production and analysing economic change, study of structural problems in UK, and public finance problems.

Education and human development: theme reflected in studies of the transmission of knowledge, new information technology centre, the 16-19 initiative, looking at attitudes to work and leisure, and cognitive and developmental psychology programme.

Government and law: plan study of resource management, public sector management, new police and prosecution system, and role of government as agent of change.

Industry and employment: will study obstacles to successful adaptation, and ways of improving competitiveness, covering response to new markets, labour relations and capital investment.

Social affairs: two initiatives on the sociology and psychology of economic life, and the social policy and production of welfare, examining the position of social policy in promoting change looking at inherited attitudes and structures.

Environment and planning: studying demographic changes, regional and local restructuring between old industrial towns and new town developments, and study of the environment and energy implications of slow growth and recession at a time of rapid change.

Social science units undergo change of status

The four specialist units supported by the Economic and Social Research Council are to be turned into designated research units with support guaranteed only for a maximum of eight more years, it was agreed last week.

The council also approved the move of the ethnic relations research unit from Aston University to Warwick University, where the industrial relations research unit is already based. It is hoped the move can be completed by the autumn.

The decision has been made to allow the council greater flexibility in allocating limited research funds. The units founded in the early 1970s had an air of permanency, though they were reviewed every five years.

Their new status means the council now knows that it only has an eight-year commitment. It currently spends just over £1m a year of its £23m budget on the units.

Professor John Rex, director of the

ethnic relations unit, is to take a year's sabbatical to write up a series of research projects on second generation immigration, funded through the European Science Foundation, and a theoretical study of ethnicity and social structures.

Professor Robin Cohen, professor of sociology at Warwick, becomes co-director of the unit, with executive responsibility, while Professor Rex will have special responsibility for promoting international links. Only Dr Robin Ward, at present a deputy director, will remain at Aston to continue his research on ethnic business.

"This move has been a very delicate operation for us, giving rise to a great deal of anxiety and misunderstanding among staff," Professor Rex said. "I hope as employees of Warwick we can now devote ourselves entirely to our research work instead of complex negotiations about our futures."

Naturally, this is a great asset for the Alliance but, like the others, our parties will be approaching the conference season with some trepidation as we wonder what we will have to say about one another. On the SDP front I shall be very surprised if we do not have some lively controversy, such as we have not seen before, at our conference in Buxton in September. I am not fearful of that, however, if anything it is rather overdue. Indeed, some strong debate within the party might well help to sharpen up people's views and also the public's perception of what we are about.

Looking further ahead my guess is that what is likely to happen is that present trends in our politics will continue during the course of the rest of this year and we will probably end up with the Alliance, Labour Party and the Conservative Party all holding around the 30 per cent figure in the opinion polls towards the end of this year. I shall look back in December and see how accurate my forecasting has been.

Ian Wigglesworth

The author is Social Democratic MP for Stockton South.

British research 'lagging behind'

by Olga Wojtas
Scottish Correspondent

Britain is dropping back internationally in scientific research and development, the Edinburgh University principal has warned.

Dr John Burnett, speaking at a graduation ceremony, said virtually all researchers were trained at university and almost three quarters of Britain's fundamental research was carried out there.

The unique amalgam of teaching informed by current research was the envy of many other countries, but at present national needs were not being met and the tempo of research was in real danger of a major decline.

In 1982, West Germany, Japan and the United States spent between 8 and 15 per cent more of their gross

national product than Britain on civilian research and development, and in the latter two countries, funding had since been dramatically increased, said the principal.

But Britain's research was being eroded by the university cuts and less funding for the research councils. "The other week there was the almost unbelievable spectacle of the chairman of the Advisory Board of the Research Councils presenting to a select committee of the House of Commons a reasoned, fully substantiated argument that unless something was done the real value of scientific research in Britain is set to decrease by 25 per cent over the next decade," said Dr Burnett.

The one thing which stood out in Britain was that more and better scientists and engineers were needed.

But while it cost more to train these students, universities' budgets had been cut by nearly 20 per cent in the five years to 1986.

The cuts also meant that the university community was "virtually static and ageing". Fewer than 300 new blood posts were being provided annually for three years, less than 1 per cent of academic staff.

"It is too small to ensure a sufficient flow of good new minds into science," said the principal. "A five to ten fold increase is required to maintain the tempo of research."

It was becoming increasingly difficult for young people to obtain university training and for graduates to be able to contribute to scientific knowledge. Dr Burnett questioned whether it was sensible, right or tolerable.

He welcomed the recent statement

by Sir Keith Joseph, Secretary of State for Education and Science, that he considered it imperative to maintain quality of higher education. But he added: "Frankly, do words go far enough?"

The Government must increase resources for universities now their new projections show that student numbers will increase. Sir Denis Wilkinson, vice-chancellor of Sussex University, said last week.

He told the summer graduation ceremony: "To ask the universities to take more students on even less money would be, at best, senseless."

The recent cuts had been very damaging and seriously eroded the capacity for teaching and research. To continue them would be an act of open irresponsibility towards the country's youth, he said.

Synod averts threat to colleges

by Patricia Santinelli

An immediate threat to the existence of some of the 14 theological colleges under the Church of England's General Synod has been averted after a decision by the Church of England's General Synod to provide extra funds for their survival.

After a recommendation from the Advisory Council for the Church Ministry, the Synod's Central Board of Finance decided to add £50,000 towards the existing theological reserve, thus bringing the total to £100,000 and ensuring the institutions' survival for another two years.

The threat to the future of some of the colleges is due to the decline in the number of ordinands coming forward from the ACCM selection conferences for the stipendiary ministry. The number fell to 303 last year, well below the replacement level and the 350 minimum agreed for their continued existence and support. Prospects for this year do not look any better.

The agreement on the 350 dates back to 1978. In that year the General Synod accepted recommendations from the House of Bishops aimed at giving some stability to the theological colleges, which had been plagued by uncertainty.

As a result of the agreement the existing colleges were to be recognized and supported for an initial period of three years, with this being extended by one year annually provided the number of ordinands did not fall below the magical 350. If it did the arrangement would cease at the end of the three year period.

The ACCM – which pays students' grants and does not fund the colleges which are independent – is concerned that no college should close because it is conducting a major inquiry into existing training, in order to decide what form the future education of the stipendiary ministry should take.

It points out that as it is impossible to know where the shortfall in ordinands is likely to be, it is vital to ensure that all institutions should remain open, otherwise there is the risk of some closing purely on financial grounds, although their actual training is on the lines the ACCM would want to see continue.

But the ACCM says it is not prepared to lower its criteria for entry so as to ensure a larger number of candidates coming forward, because it wants people of a higher standard who are capable of working in an increasingly difficult environment.

Instead, it has decided to launch an initiative this autumn and next spring to alert all churches and parishes, as well as university chaplains and schools to the fall in ordinands.

Brunel tackles work pressures

by Paul Flather

A three-year comparative study of how universities, polytechnics, and colleges respond to external pressures in the training of students for work is to be done by Brunel University.

The study, by a team from the university's government department under Professor Maurice Kogan, professor of government and social administration, is being backed by £150,000 from the Council for National Academic Awards and £93,000 from the Leverhulme Trust.

The aim is to investigate sources of information about employment needs available to institutions, the channels through which the information flows, the ways and means used by institutions when reacting to the data, and how all this meets job requirements.

The final research will well point the way to a more effective and pertinent questions – whether public sector institutions, with their close ties to local authorities, their special

course approvals and CNA A validation schemes, are better than universities in responding to employers' needs when training students.

The research team plans to study the set-up in seven institutions, probably three universities, two polytechnics and two other public sector colleges. The research will be based mainly on interviews with key figures in each institution, plus scrutiny of relevant policy documents. Small student surveys will also be done.

Professor Kogan said this week it was always important to study how far higher education institutions were responding to current employment concerns. "We want to be able to examine the mechanisms used to react to external pressures whatever the current political environment in which institutions have to work."

The study will build on previous research, notably by Professor Tony Becher of Sussex University and others which highlighted the import-

ance of personal initiatives by lecturers in meeting external demands.

But it is hoped the study will go on to suggest how some administrative mechanisms work better than others in processing "messages" sent to higher education bodies from the social, political and employment arenas. It also hopes to report on how the curriculum is moulded in response to external pressures.

The new study follows another project on higher education expectations backed by about £150,000 from the Department of Education and Science and also involving a team under Professor Kogan. The final papers in that project are to be published shortly.

The new study will link up with other research on higher education and the labour market, currently under way under the auspices of the CNA A's development services unit. Mr John Brennan, a CNA A assistant registrar, is to be an associate member of the Brunel study team.

APT slams research cash system

The present system of support for research in public sector higher education is both inadequate and haphazard, according to evidence given by the Association of Polytechnic Teachers to the House of Commons Education, Science and Arts committee inquiry into the science budget.

At the level of local authorities and institutions, research activity is regarded as a peripheral interest, and comes high on the list of restrictions when budgets are cut.

The APT paper says the amount of external funding attracted to institutions will be related to how much is provided internally. "It is a nonsense to suppose that one sector of higher education institutions (the public sector) should be required to operate in the research field by relying mainly or solely on external funds for 'applied' research, while another sector (the universities) is generously funded to do 'pure' research."

Polytechnics cannot compete with universities on an equal footing in applying for research council funding, because they do not have the institutional funding to match the council's money, so need higher proportions of the total project funding for equipment and technician support.

"The research councils are historically dominated by university interests both in composition and policy," the paper says. "The research councils are loaded against public sector higher education institutions by their very constitution: the system has a tendency to maintain the status quo by an under-representation from public sector higher education institutions."

The Advisory Board for the Research Councils contains among its 27 members no representative from public sector higher education while its reports and recommendations are solely oriented towards universities, according to the APT.

It suggests an additional form of research council support – the secondment of staff to institutions to support particular projects. The paper sums the case for "big science" as disproportionate to the results and wealth creation that would follow investment in smaller scale projects.



Scaling the Olympian heights

This unusually warm, dry summer vacation has something of the feel of the fall before the storm. The higher education sector in Scotland faces a coincidence of changes which are likely to test the resolve of the lecturers' unions and the strength of their relationships.

Towards the end of the session the Secretary of State set up his new 'advisory council'. This small, select little group, chosen for their superior knowledge and insight, have been invited to deliberate on the issues for 12 months and then deliver from their Olympian heights their definitive judgment on how best to rearrange, redirect and resource the system of higher education in Scotland. Of course, like all mortals the Secretary of State need not follow this advice. But only fools and heroes rebel against the gods and Mr Younger is neither.

The unions on the other hand have no choice. In this context they can only be fools or heroes. The question facing them is how to respond effectively. Immediately this raises a further question, how to act collectively. For the 3,000 or so staff in higher education, excluding the university group, are represented by five separate unions (including my own).

To the outsider this arrangement might seem less than wise, but there are good historical reasons which still have an appeal for many. There is, however, another possible reason – the national psychology. Scottish democracy is based more on a Celtic passion for argument than on any Hellenic respect for rationality.

The role played by the established Church of Scotland through centuries of ecclesiastical dispute – that of the permanent bastion against which the other rallied and rebelled and defined themselves – is played now among the educational unions by the Educational Institute of Scotland. The EIS boasts a Royal Charter and a long proud history. It can claim an overwhelming number of members relative to any of its rivals. It therefore dominates the national scene. It too has Olympian pretensions. But such eminence carries its own problem. Like most Olympian presences its power commands respect, sometimes fear, but rarely love. To some of its own members it appears remote, too absorbed in the energy-sapping councils of the mighty to care much about the petty problems of individuals. To many outside the EIS it can appear threatening, uninterested in problems beyond its direct experience, unwilling to admit to ignorance or past error. As a result, most lecturers in higher education have opted for one or other of the EIS alternatives.

In all of this it is hard to know where the perverse passion of the Scots for disagreement ends and the truth begins. One thing, however, is clear. The whole sector faces unprecedented difficulties. Unless the unions can find a way of working together we are all likely to be overwhelmed. In the end all the secessions and disruptions of the Scottish churchmen were laid aside in face of the massive onslaught of twentieth-century secularism. I suspect the coming months will find out whether our fraternal sectarianism has also exhausted its historical momentum.

Jack Dale

The author is secretary of the Association of Lecturers in Scottish Central Institutions.

Lad o' pairs is honoured

Mr Robert Mugabe, Zimbabwe's Prime Minister, was described as a "lad o' pairs" in the best traditions of Scottish universities when he received an honorary degree from Edinburgh University last week.

Edinburgh's vice principal, Professor Norman Hunt, said in presenting Mr Mugabe for an honorary doctorate, that the "lad o' pairs" was a young man of ability and grit, determined to succeed against all the odds.

Mr Mugabe, born of peasant stock, had taken degrees in arts, education, economics, law and administration – two of these while he was in detention. But the university was honouring him not only for his extraordinary intellectual discipline and energy but for the qualities of statesmanship which made him one of the great figures of modern Africa, Professor Hunt said.

Mr Mugabe leaves the degree ceremony with Dr John Burnett, principal of Edinburgh University.



OU starts to talk a different language

The Open University is planning to extend its activities into the field of language teaching and intends to launch its first undergraduate course within the next three years.

German will be the first language to be offered in the undergraduate programme and students will not require any prior knowledge. Plans for the development of language teaching are still at a very early stage, but the university does not intend to compete

with the traditional correspondence school courses.

More emphasis will be placed on learning to comprehend the language through reading, than on spoken or written German. The aim will be to equip students with a high standard of comprehension of written texts, but to allow for slower development in the other skills.

The undergraduate course, which will probably carry a full credit entitlement,

will be designed to introduce students to aspects of German culture, with the eventual possibility of incorporating some German literature and history into other courses. The university intends to adhere closely to an academic approach, steering away from the business and holiday-orientated tuition of other providers. It is envisaged the new course will take full advantage of all the OU's distance learning techniques.

PARTY LINE

End of term examination

reminiscent of Victorian times in which a strike of this sort can go on. The miners' dispute, the dock strike and the general economic situation have dominated the Westminster scene as the session draws to an end for the summer recess and the start of the new political season in the autumn. The most significant development has been the weakening of the position of the Government over a period of time with little prospect of its difficulties being reversed in the near future. Mrs Thatcher caught the tide of her popularity after the Falklands war and was swept back into Downing Street on the crest of that wave.

Short of another cataclysmic event such as that I can see no reason why the decline in the Government's popularity should not continue. There is very little cause for optimism within her ranks over coming months and the cumulative effect of GCHQ's handling of the abolition of the

GLC and the metropolitan counties and other banana skins have rubbed much of the gloss off the prime minister's public image and have brought the divisions in the Conservative Party to much greater prominence. I think that process will go on for some time yet.

Nell Kinnoch is turning out to be the fairly ineffective wingback that some of us have known him to be right back to his ranting student days. But he has succeeded in keeping the Labour Party away from the major issues which divide it and has presented a much more congenial and attractive face for his party in the media. The choice of subject by the Labour Party for each of its weekly debates in the House has been repetitive, frequently dull and almost always uninspiring because of this.

The Labour Party has also been affected by the constant absence of its members from the House during many of the major debates that have

taken place. As with the Conservative Party the really testing time is going to be in the run-up to the annual conference in October and whether the divisions appear more openly in full view of the electorate as they have so often before.

I hope it would not be too unfair to claim, despite my obvious prejudice, that, despite its small numbers, the Alliance in the House has made a substantial impact out of all proportion to its numerical strength. There is no doubt, as commentators widely agree, that this is to a not inconsiderable extent due to the success of David Owen. He has undoubtedly been a major force on the Westminster scene and, I must say, having worked with many leading politicians over ten years in the House, and even longer in active politics before that, I have never yet come across anyone with a greater output or capacity for lifting the nail absolutely right on the head on issue after issue.

Naturally, this is a great asset for the Alliance but, like the others, our parties will be approaching the conference season with some trepidation as we wonder what we will have to say about one another. On the SDP front I shall be very surprised if we do not have some lively controversy, such as we have not seen before, at our conference in Buxton in September. I am not fearful of that, however, if anything it is rather overdue. Indeed, some strong debate within the party might well help to sharpen up people's views and also the public's perception of what we are about.

Ian Wigglesworth

The author is Social Democratic MP for Stockton South.



Legwork finished: Nicola Dimery, from Cheltenham, last week received her PhD in zoology from Leeds University. Her thesis was on the mechanics of the leg movement of rabbits and squirrels.

Younger attacked over SCOTVEC decision

The Scottish Business Education Council has attacked the Secretary of State for Scotland's decision to appoint the chairman of the new Scottish Vocational Education Council.

Later this year, SCOTVEC and its sister organization, the Scottish Technical Education Council are to merge into SCOTVEC, and Scottish secretary Mr George Younger has proposed that he will directly appoint the new chairman, as well as increasing the number of his nominees from two to four.

Mr William Nicol, chairman of the SCOTVEC joint steering

group, last month wrote to the Scottish Education Department, saying it noted the proposal with deep regret. The council's elected chairman had been accepted and supported by all representatives.

"This could not be guaranteed by a direct appointment which could possibly lead to some individuals being unwilling to serve as members," Mr Nicol said.

Now Professor Michael Baker, chairman of SCOTVEC, has sent another letter to Mr Younger saying the proposal has aroused considerable criticism and hostility.

There was unanimous opposition to the move, and given the diversity of backgrounds of SCOTVEC's members, from industry, commerce, trade unions, professional bodies and education, this was remarkable.

"We hope very much that it is not too late to persuade you to permit the incoming board of SCOTVEC to elect its own chairman," he said.

A Scottish Office official said: "The Secretary of State will consider the views, but he has made clear his wish that he be responsible for appointing the chairman and four members."

Australia boosts spending

from Geoff Maslen

MELBOURNE

Higher education in Australia has been given a considerable financial boost for the first time in seven years.

Announcing spending guidelines for the next three years, the minister for education and youth affairs, Senator Susan Ryan, promised a \$65m increase in spending on universities and colleges next year, bringing expenditure on these two sectors to almost \$2,000m.

But the 2.8 per cent increase is less than half that urged by the government's advisory body, the Commonwealth Tertiary Education Commission. Senator Ryan described a budgetary climate requiring maximum restraint as the reason for reducing the 6.6 per cent increase recommended.

Along with the 2.8 per cent increase, the guidelines provide for:

- a 20 per cent increase in capital spending in universities and colleges;
- a return to financing all aspects of higher education on a triennial basis, giving institutions a budgetary certainty they have lacked since the mid-1970s;
- implementation for the first time of triennial financial arrangements for technical and further education;
- an \$11m rise in the money to be spent on tertiary and further education.

In outlining spending for the second and third years of the triennial Senator Ryan gave only minimum figures and called for more advice from the tertiary education commission. She stressed that this was not a deferral of the triennial - which the institutions have feared could happen - but merely a chance for the government to get more detailed information on the needs of higher education.

There were mixed reactions to the government's guidelines. The Australian Vice Chancellors' Committee gave qualified support to the increased spending proposals but expressed reservations as to whether they would cover the proposed expansion in enrolments.

The Australian College of Directors and Principals in Advanced Education generally welcomed the announcement. But it also believed enrolment increases over the next three years may have been underestimated and that there would be growing pressure for increased grants.

The Federation of Australian University Staff Associations bitterly attacked the guidelines saying higher education had been coneyed by the government and that institutions would once more have to try to cope with rising enrolments with minimal funding increases.

Referring to the nine special centres of research established under the Fraser government at a cost of \$16m, Senator Ryan said the Labour government supported their continuation. But there would need to be a review of their work.

Senator Ryan called on higher education institutions to seek more of their income from private sources. She said the government considered there was capacity for institutions to increase income from sources other than commonwealth grants.

The new French Prime Minister, M. Laurent Fabius, has appointed the left-wing former minister Jean-Pierre Chevènement as the country's new minister of national education, in a move which has generated much surprise in political circles.

M. Chevènement was M. Fabius's predecessor as former minister of industry and research. But he was dropped from the Cabinet at the end of last year after expressing strong opposition to the government's economic policies and after his own policies had been strongly resisted by the heads of several of France's nationalized industries.

As minister of research in the first Cabinet formed after the victory of the French left in the general election of 1981, however, Chevènement was widely applauded both for his successful efforts to obtain a significant increase in funds for the scientific community, and with establishing more collaboration between research and industry.

As a result, it is generally expected that he will initiate the creation of similar strong links between industry and the educational world one of the main goals of his new job. This task will extend the new directions already injected into French schools and universities by his predecessor, M. Alain Savary.

Axed French minister restored to Cabinet

from David Dickson

PARIS

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'Wait for the experts'

A team of leading forensic scientists from American universities last week called on the Argentinean government of President Raúl Alfonsín to suspend exhumations of the bodies of the thousands of people who "disappeared" during seven years of military rule.

The team, which toured Argentina last month at the request of the new civilian government's National Commission on Disappeared Persons, said that in their haste to recover the bodies of untraced military workers were unwittingly destroying vital evidence that could be used to convict their killers.

More than 9,000 people disappeared during the military regime and the Alfonsín government has spent the year amassing detailed information. It asked for the help of American universities in identifying the bodies of the victims and establishing how they died in order to bring prosecutions.

At a press conference in Washington last week, the American academics said enough scientific evidence could be collected to incriminate many of the killers, but only if exhumations were suspended until the Argentinean government established a single national centre.

Dr Lowell Levine, clinical associate professor at the New York University Medical School, said Argentina had a well-established community of clinical scientists, but they had lost public credibility after collaborating with or being coerced by the military regime.

He is said to have taken the decision to resign shortly after hearing the previous Prime Minister, M. Pierre Mauroy, make significant concessions to rank-and-file Socialists during a parliamentary debate on the Education Bill, which was primarily designed to integrate France's private schools more closely into the public sector.

These concessions upset the delicate compromise on the Bill which Savary had negotiated with supporters of the private schools, in particular with the leaders of the Catholic church. One result was a mass demonstration in Paris at the end of June.

This show of opposition prompted President Mitterrand to announce changes to make it possible to hold a referendum on issues affecting public liberties. He also decided on the Cabinet changes that had been widely expected since the left suffered major setbacks in the European elections in June.

M. Chevènement, the son of a schoolteacher, will now be responsible for the difficult task of drawing up the new Bill.

Another newcomer to the French Cabinet is M. Hubert Curien, president of France's national centre for space studies, who will take over M. Fabius's previous responsibilities for the ministry of research and industry.

Schools fail academic test

Most West German school-leavers are academically and linguistically unqualified to cope with the demand of a university degree course, a study by the university professors' association has revealed. The report, based on a survey of the association's 11,500 members called for a comprehensive revision of the *Gymnasium* and the *Abitur* which failed to convey the most elementary working methods.

The inquiry, to which some 1,300 privy school-leavers replied, showed that university beginners were neither untrained nor incompetent but inadequately prepared. Although mostly intelligent, interested and eager to learn, students were often unfamiliar with essential working techniques and incapable of expressing themselves verbally or in writing, teachers complained.

Many students showed an apparent lack of intellectual curiosity and an inability to discriminate between facts and opinion which diminished their critical competence. This contrasted to the general insecurity and restlessness of younger people who were more and more into "the snail's shell of their own self-protection".

To prepare young people for university was the task of schools, not universities, the association's president Hartmut Schiedermaier stressed.

Most professors were confident that their task if it learned to concentrate on its original function.

Head-on collision over numbers

from Barbara von Ow

MUNICH

West Germany finance ministers and university rectors are colliding head on over how to tackle the nation's swelling mountain of students.

At its recent plenary session in Bonn, the rectors' conference (WRK) asked the finance ministers of the Länder to rank-and-file Socialists during a parliamentary debate on the Education Bill, which was primarily designed to integrate France's private schools more closely into the public sector.

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Ngaio Crequer reports on the work of Liverpool University's environmental advisory unit

Waste not, want not

Professor Tony Bradshaw, one of the founders of Liverpool University's environmental advisory unit, is pictured on the right picking a radish from a crop planted just four weeks previously in brick waste. The radishes, given only a simple dressing of fertilizer and organic material, were planted with other vegetables and grass at a university stand at the International Garden Festival.

They were designed to show the effectiveness of land reclamation techniques promoted by the unit. The stand, "New lands for old", showed how plants could be grown on three different types of waste land: domestic refuse, coal waste and urban brick waste.

The unit also gave key advice to the festival in its initial feasibility study. The garden festival was built in two years on 125 acres of derelict dockland, a rubbish dump known to Liverpoolians as the Cattle - the east iron shore.

The unit examined whether the site was generating methane gas (which if it gets to the surface, drives oxygen out and kills plants), and then where it was coming from. Methane extraction systems could then be devised.

The environmental advisory unit was established in the botany department in 1974, and has become an extremely successful, self-supporting advisory consultancy and research group. There are three principal consultants, Dr Graham Parry, director, Dr Bob Bell, deputy director and Dr David Parker, advisory officer. Graham Parry started off as a microbiologist. He did his PhD in plant physiology, then three years' research into air pollution measurement, and six years in a planning department.

Bob Bell's background is botany; he did his PhD in air pollution and has been at Liverpool for the past six years. David Parker began as a

zoologist, with a PhD in botany (rare plant conservation) and is now an ecologist. The rest of the 15 staff are archaeologists, geographers, landscape architects, computer experts, chemists and soil scientists. The principals are employed by the university on an indefinitely renewable contract, the rest on yearly renewable contracts.

There is no academic direction from the university, but the unit can draw upon the vast resources of other departments. At the end of each financial year the unit reports to the senate, which takes a large percentage of its profit, and the rest is reinvested in the unit. The university provides the building and overheads.

The unit was originally set up (with money from Cheshire County Council and the University Grants Committee) to advise on the regenerative aspects of derelict land, but its remit is now much wider.

There is for example an archaeology group, a landscape architects section and a geography group just set up. In this one of the staff's specialisms is to trace the magnetic characteristics of dust in the air. So for example if fish are being killed by pollution and there are four or five possible sources, the right one can be identified.

The unit is able to make substantial chemical analyses of substances. So it can evaluate the natural history of a piece of land, make proposals for treating, managing and conserving land and identify contaminated or toxic land.

The staff's work ranges from advising someone why grass will not grow in their garden to

suggesting how the Consett steel works - due to be demolished - can be turned into an agricultural development. They carry out product testing and are often called as experts at public inquiries.

One of their growth areas has been advising how to redevelop contaminated land which has been associated with declining industries, such as steel, gas and chemical works. Companies may have ceased production but residues will still be left in the ground. The unit collects soil samples, interprets chemical data and designs remedial measures which will make the site safe for the long term.

In this staff are international experts. Each year they are invited by the United States army engineers, to the waterways experimental station in Mississippi, to review their research programme on degraded land.

The unit is also helping the department of civic design in its formulation of a master plan for the city of Alexandria in Egypt. The Alexandrians intended to build a huge pipeline into the Mediterranean to dispose of their sewage. Instead of that, the unit is looking into ways of discharging it into the desert, and reclaiming that land.

Naturally the Liverpool and Merseyside councils are regular clients. The unit has been advising on the restoration of sand dunes at Formby, and elsewhere cleaning up canals, restoring colliery shales and rehabilitating urban parks. It also offers an archaeological service, including field survey, planning implications, excavation and processing of finds and aerial photography. Recently it has ex-



visited the Celtic and Viking site of Peel Castle the Isle of Man.

Dr Parry said: "We represent the university and we disseminate information and activities across it but basically we are businessmen. Our role is making enough money to keep ourselves employed. Our turnover in the last financial year was £250,000 including research grant and consultancy."

Not surprisingly both have been tempted to go into business and have had good offers. "The potential of developing this kind of unit in university in a proper coordinated manner is too much to give up," Dr Parry said.

mission whose well-publicized report includes a strong case for favouring overseas students. It proposes the establishment of a Council on Foreign Student Policy and Programmes.

AUSTRALIA

The Australian government, which took office after the introduction of differential charges is considering two reports dealing with overseas students. One recommends an increase in the quota for admissions, while the other urges the government to the amount set aside for scholarships.

There are no tuition fees for any students in Australia, but most foreign applicants have to pay for their first year of study. The type of course. Last year there were 19,000 privately-funded overseas students, three quarters of whom came from Hong Kong and Malaysia.

INDIA

Officials estimate that the number of overseas students in Indian universities at 12,000 in 1981/82 but the standing committee estimated the true total at nearer 30,000. Fees for all students are nominal by Western standards and there is no differential for foreigners, who tend to be from India, Nepal and a few African countries. Numbers are continuing to grow, particularly in medicine, as other countries price themselves out of the market for students from developing countries.

Higher fees have forced governments which have relied on more developed countries (Britain in particular) to educate large numbers of their students at postgraduate and even undergraduate level, to rethink. Several Commonwealth nations have tried to expand their own higher education provision, as well as enticing the countries to which they send students, as a result of fee increases. Malaysia, notably, has added a new university and cut the number of its students studying in Britain, although arrangements under the Pym Package will redress the balance somewhat. Zimbabwe, too, has tried to expand provision at home and has revised its priorities for supporting postgraduate education for the national university and other polytechnic and teacher training capacity has been increased.

Nigeria has expanded its higher education provision faster than any Commonwealth country, but still cannot meet its postgraduate needs. The new regime has stopped undergraduates going abroad in order to preserve foreign exchange, but had more than 20,000 students overseas when it took power.

Such activity, particularly in the last few years, shows that the issue is anything but dead, no matter how hard British ministers might try to forget it.

Struggling to stay open

Maggie Richards on the Open University's survival battle

showing in mature entrants. He points first to the broad nature of the OU degree and the more specialized courses offered by other institutions as an indication one another. Second, he points to the continuing needs of some groups of students - disabled people, the Armed Forces, elderly people - for the distance learning techniques at which the OU excels.

Since the mid-1970s the OU has seen a transformation in its student population. The non-graduate teachers who initially flocked to the OU to gain their degrees have filtered out of the system. Now the OU is recruiting less well-qualified adults - 44 per cent of its current intake left school with fewer than two A level passes. Women are applying for places in increasing numbers. In 1971 they formed only 25 per cent of entrants, now 48 per cent are female.

Despite its continued ability to attract sufficient students, Mr Grange is concerned that the already high fee levels and associated costs are bringing the OU perilously close to abrogating its claim to be "open". Demand for student places has invariably mirrored unemployment levels in the university's 13 regions, with Northern Ireland, Scotland and Wales being most adversely affected.

Last year the OU was able to offer a place to every applicant in its Yorkshire and west Midlands areas. Now danger signs are emerging in the east Midlands and south-west. In Ulster, the worst hit region, the OU expects nearly half the places offered this year will be turned down by students on grounds of cost. David Grange predicts that if the trends continue the OU could become a predominantly south-east based institution.

In 1983 the university's hardship fund ran out of cash. This year, with special Government aid for unemployed people and an award from its grant, the OU will offer financial assistance to 10,000 of its students, this defraying £1m in fee income.

Currently, students following arts and social sciences courses can expect to pay approximately £1,000 for their degrees. But for some science and technology students, who will pay the additional costs of home experiment kits, day and summer schools, the price is likely to be nearer £2,000. As an economy measure the OU is reducing the level of its tutorial support system and concentrating its efforts largely at foundation level, where the risk of student drop-out is highest.

Other distance teaching institutions in West Germany and Canada which do not possess the OU's extensive support systems can only count their graduates by the dozen, or in hundreds - not in terms of the thousands which



Study kits and equipment will be remodelled more cheaply.

the OU produces annually.

Studying at the higher levels of the undergraduate programme will, in any event, become more difficult because of the cuts, according to Professor David Murray, the OU's pro-vice chancellor for academic affairs.

He is adamant that the academic content of courses should be preserved at all costs: "We have not lowered the quality, though courses will now be more difficult to study and the drop-out rate will be higher. The courses will, therefore, be less cost efficient, but despite everything we will not permit a lowering of academic standards."

Grant reduction of such severe proportions will also drastically limit the amount of new academic development the OU is able to undertake. Student demand for computer courses has already outstripped the university's ability to respond - and only one new course can be delivered in 1986. In this particular area the cuts have dealt a bitter blow to the OU's hopes of fully exploiting the booming market in home ownership of micro-computers. The university is now desperately engaged in a separate struggle to persuade the DES to provide funds for this specific purpose.

In accordance with Government policy, the OU has been shifting emphasis towards maths, science and technology teaching. In 1980 only 42 per cent of students followed such courses, by last year 51 per cent were involved in these areas.

But in orchestrating the switch, the university did not help ease its own financial predicament. The higher costs involved, including the provision of expensive equipment for students' home use, has led to enforced curtailment of student numbers or, in one instance, the transfer of costly experimental work to an extended summer school, where the financial burden will fall on the students, not on the university.

Professor Murray is deeply frustrated that hampered by financial considerations, the OU is also having

to sit on the sidelines and watch technology outrun its pioneering work in distance learning techniques.

Distance learning techniques have not only been used to advantage in the undergraduate programme - they have been invaluable in making the university's presence felt to many more thousands of people through the continuing education programme. The OU has always seen education outside the university area as part of its remit in accordance with the objectives of its Royal Charter: "To provide education for its students and to promote the educational well-being of the community generally."

Currently more than 40,000 students are using OU continuing education material. But on three counts the university argues it is being penalized in the development of this aspect of its work. All continuing education courses must be "self-financing", there is no provision of grant as given to the extramural departments of other universities; in turn this forces the OU to charge full economic costs for all continuing education courses.

In an attempt to keep pace with developments in professional and commercial areas of continuing education the university negotiated a complex form agreement with the DES. The OU is now concerned that the DES is demanding repayment of the current liability of £1.5m at a far faster pace than the investment will yield in financial returns.

Since this entanglement, the OU has sought alternative forms of revenue, notably a recent £240,000 investment by Barclays Bank for provision of a course in start-up skills for small businesses. What made the scheme unusual was the shared risk basis on which it was formulated, with both the university and bank agreed on a payment by results method of income.

For some continuing education projects financial aid has been forthcoming from other Government departments - a major award of £500,000 over five years from the Department of Health and Social Security has paid for

development of a training programme for social workers, while the Department of Trade and Industry has funded another programme.

Enthusiastic support from private enterprise and other government departments has led Professor Ralph Smith, pro-vice chancellor for continuing education, to question the DES's reluctance about financial assistance.

"Shared risk-taking is something the DES has not been prepared to indulge in, yet private industry and other government departments have come forward, and we have had direct grants from other sources."

It is in promoting the educational well-being of the community generally that continuing education at the OU is floundering. The university has no reserves from which to fund development, nor can it expect to provide courses for disadvantaged people on a self-financing basis. As with the undergraduate programme, the threat of becoming the "University of the South East" looms large.

Responsibility for responding to the overall nightmare confronting the university rests with Dr Ian Dey, pro-vice chancellor for planning. To him, in conjunction with the vice chancellor, has fallen the task of compiling the OU's case for the visiting committee, the group established by Sir Keith Joseph to operate as a watchdog on the university's activities.

Budgeting by the DES does not take into account the many additional overheads which the OU has to bear, according to Dr Dey. These include such variables as contractual arrangements for computer equipment and short-term leasing of regional offices. But the major headache for the OU remains staffing. Two thirds of its salary bill is spent on the 6,000 academic and 400 administrative staff of the university. As many of them, particularly those in academic posts, began their careers with the OU at relatively junior levels, the university is now having to pay an inordinate amount of incremental awards. Voluntary redundancy and early retirement are not likely to appeal to the bulk of these people, but in any event the OU has more staff wanting to take these options than it can afford to pay, says Dr Dey.

Outside the university's jurisdiction, salaries of broadcasting staff have to be paid on BBC terms, which can differ substantially from the DES calculations, based on Treasury forecasts of pay levels.

Dr Dey argues forcefully the point that the OU has been undertaking a vast economy exercise since 1980, when the level of its grant in real terms began to drop alarmingly. He is certain there are no further cuts than can be made: "I find the idea that there is an excess of funds ludicrous. There is no fat to be cut out," he said.

"This is the last ditch. We cannot take any more and still be something that is credible in a national role as an institution that is relatively open of access. We are already only relatively open because of the high price of our product."

"A totally market-led approach would force us to take off the less popular courses. We would be withdrawing into a narrow band of specialisms and changing the whole nature of the university," he said.

Fellow feeling

Peter Scott on Durham University's Society of Fellows

Durham University's Society of Fellows is a very modern idea but dressed in severely traditional clothes. Its title has a good old-fashioned ring but the problems it seeks to solve are very up-to-date - relief from heavy teaching loads that crowd out research, transference of "new blood", and closer university-industry links.

The idea is simple enough. The bulk of the money raised by the university's recent one hundred and fiftieth anniversary appeal has been used to establish a research foundation. The foundation then supports the appointment of fellows, who have grown in number from ten in 1952/53 to 18 in the present year (with a further six fellowships still to be filled in 1984).

These fellowships are of three types. The first are foundation fellowships for which only existing members of Durham's academic staff are eligible. The fellows are relieved of all their teaching and administrative duties for one or two years to be able to concentrate on important research, and their departments are given money to appoint temporary replacements.

The second is visiting or college fellowships, which can be held for one, two or three terms. These fellows are not paid a salary but receive travel and lodging in one of the Durham colleges and also a small research and travel

allowance. Most of them so far have been members of the academic staff of other universities who have come to spend their sabbaticals in Durham.

The third is research fellowships which have been funded by donations to the research foundation. Shell, the French oil company Elf Aquitaine, and Kuwait so far have come up with the £180,000 needed to endow a research fellowship. Research fellows spend up to three years in Durham.

Durham County Council has given £30,000, sufficient to endow a visiting fellowship. The university itself has helped the research foundation on its successful way by pump-priming a foundation fellowship to commemorate its former vice chancellor, Sir Derman Christie. Long-standing research fellowships, two Addison Wheeler fellowships in the life sciences and the Isabel Fleck fellowship in early medieval history, have also been included to enhance the research foundation's portfolio.

The whole enterprise has two separate institutional forms. The first is the research foundation committee established in 1982 and chaired by Durham's vice chancellor, Professor Fred Holliday. It is mainly responsible for appointing the fellows. The second is the Society of Fellows also set up two years ago whose

president is Professor Malcolm Brown, a former Durham geology professor who is now director of the British Geological Survey.

The job of the society is to look after the fellows once they arrive in Durham and help to organize the lectures or seminars which they are asked to give. It is effectively run by its vice president, Dr Richard Chapman who is reader in politics at the university.

Durham's initiative grew out of the university's one hundred and fiftieth anniversary appeal almost by accident. A research foundation was only one of a series of schemes to which potential donors were invited to contribute. Another was to build a new arts centre. But the bulk of the money pledged especially by companies, was given to the research foundation.

According to Professor Brown and Dr Chapman it has brought many advantages to the university. First, it is a fairly simple and cheap innovation which nevertheless has a high profile, which is important at a time when universities are being urged to innovate.

Second, it has already begun to have a significant impact on Durham's research profile. Some in the university have always been worried that Durham's image is dominated by images of Sloane-Rangerish undergraduates

rather than of high technology research. This new activity may help to modify that reputation. Thirteen of the fellows are in science and engineering compared with only five in arts and social studies.

Third, the new fellows may help to revitalize the Durham colleges which a critic once described as glorified boarding houses. That is no longer true but the colleges still have a weak academic presence.

Fourth, the research foundation will help to foster links between the university and industry. The fellowships provide a good vehicle for companies to invest in the university on terms that are mutually beneficial. The company pays for research in the general area of its interest - geology in the case of the Elf Aquitaine fellowship and middle eastern and Islamic in the case of the still to be filled Kuwait fellowship. But the university is left with plenty of room for intellectual manoeuvre.

For Durham the research foundation and the Society of Fellows are fast becoming a central theme of the university's strategy for the 1980s. A higher research profile, "new blood", mobility within and between institutions, university-industry links - these are now the front-line issues for all universities and the Durham initiative addresses all of them.



Members of the Commonwealth Standing Committee of Student Mobility (clockwise from the chairman, nearest camera): Sir Roy Marshall, (chairman), Sir Monty Finniston, Professor W. J. Kambo, Professor R. R. Lohia, Sir Hugh Springer, Tan Sri Murad Mohammed Noor, three members of The Commonwealth Secretariat, Mr Frank Hamby, Professor T. H. B. Symons, Dr A. Christodoulou, Mr G. Gublo, the Rt. Hon. Lord Carr of Hadley, Dr (Mrs) Madhuri Shah, Professor Peter Williams, Mr M. Mahoutra, and Dr Michael Sinclair.

John O'Leary outlines the background to the problems of policy on overseas student fees which Commonwealth education ministers have been considering in Cyprus

Like all official Commonwealth bodies, the standing committee was at pains to make its comments as general as possible. But there was no disguising the fact that British policy was its main concern. If only because it remains the country receiving the largest numbers of students from other Commonwealth countries and because its original policy change is still used as a defence by those under pressure to resist the temptation of differential fees.

For, although the British government's consistent refusal to budge from its policy of full-cost fees for all students from outside the EEC may have given the impression that nothing was changing, where student mobility was concerned, the picture for 1984/85 will recoup the whole of the year's expenditure. Malaysia, Cyprus and Hong Kong have reaped most benefit from the package through specific schemes for their students, but there is no guarantee of those arrangements continuing beyond 1985/86.

BRITAIN

The number of non-EEC students

about half of whom are from other Commonwealth countries, has fallen from 81,000 to 52,500 since full-cost fees were introduced. The decline has slowed considerably in the last two years, stopping completely in the universities, but this is attributed partly to the effects of a cheaper pound. As expected, developing countries have been hit hardest, enrolments of their cent have fallen by more than 20 per cent since the new fees policy was established, continuing a trend which was already under way.

Only the £46m Pym Package has been offered to sweeten the pill and critics claim that the rise in fees for 1984/85 will recoup the whole of the year's expenditure. Malaysia, Cyprus and Hong Kong have reaped most benefit from the package through specific schemes for their students, but there is no guarantee of those arrangements continuing beyond 1985/86.

NEW ZEALAND

The new government of Mr David Lange is committed to abolishing the NZ\$1,500 fee for private overseas students. The defeated administration

had already announced changes to take effect in 1985, waiving higher fees for students from South Pacific nations, pegging the foreign rate at \$1,500 for those from ASEAN countries but introducing much higher full-cost rates for others. Foreign student numbers have been falling marginally from a base of 1,750 in 1982.

CANADA

The expansion of Canada's overseas student population has left it rivaling Britain as the major host nation for the Commonwealth. Even though six of the ten provinces now charge higher fees for foreign students, there was a jump of 40 per cent in overseas enrolments in the three years after Britain brought in its full-cost policy. The strength of the Canadian dollar has brought at least a temporary end to this trend, leaving the overseas total at a little more than 34,000, of whom Hong Kong and Malaysia accounted for 40 per cent.

Canada does not have a national education policy, but a member of the standing committee, Professor H. B. Symons, has chaired a national com-

Polemics or practicalities? For the most part – though not exclusively – we settled for the latter. Not from lack of awareness of the range of opinion that exists around this particular topic. Not even on grounds of the supposed inhibitions administrators feel about involvement in policy issues – a theme *The Times* believed it had identified at the last Conference of University Administrators conference.

I think we shared the view that there was nothing intrinsically wrong with the notion of universities raising more money than they presently do from other than traditional, ie government, sources – and indeed, we point out that this particular "tradition" is more familiar than long-established. It was less than 30 years ago that 50 per cent of the funding for the then university system came from "other", ie private origins.

We were, however, concerned to try and inject a measure of realism into a debate in which argument often seemed to pivot round the notion that you either had almost 100 per cent public funding or the universities were about to be, like British Airways and British Telecom, "privatised". Often invoked in this debate, on either side, are somewhat simplistic notions about the relevance or irrelevance, of the USA experience. On the one hand, the possibility of transferring the experience of North American "private" higher education to a British setting – despite that system having evolved within a different political, economic and social framework and the fact that many "private" American universities get a major injection of state funds. On the other, come sometimes glib assumptions that none of the North American experience and techniques of fostering closer relationships with industry or alumni – and of universities profiting thereby in various ways – has any potential application on this side of the Atlantic.

We have, in a sense, taken what some would regard as a political stance in the name of "realism", and of course, that will find some opponents. Our collective view is that however actively the universities continue to press their case for adequate public funding, the probability is that in the foreseeable future, level funding – from the present much reduced base-line – is probably the more optimistic expectation, whatever administration is in power. Given that assumption, universities either face the option of "make do and mend" or of trying, at least at the margin, to generate income from other sources, wherever they properly can, to help maintain the possibility of new developments.

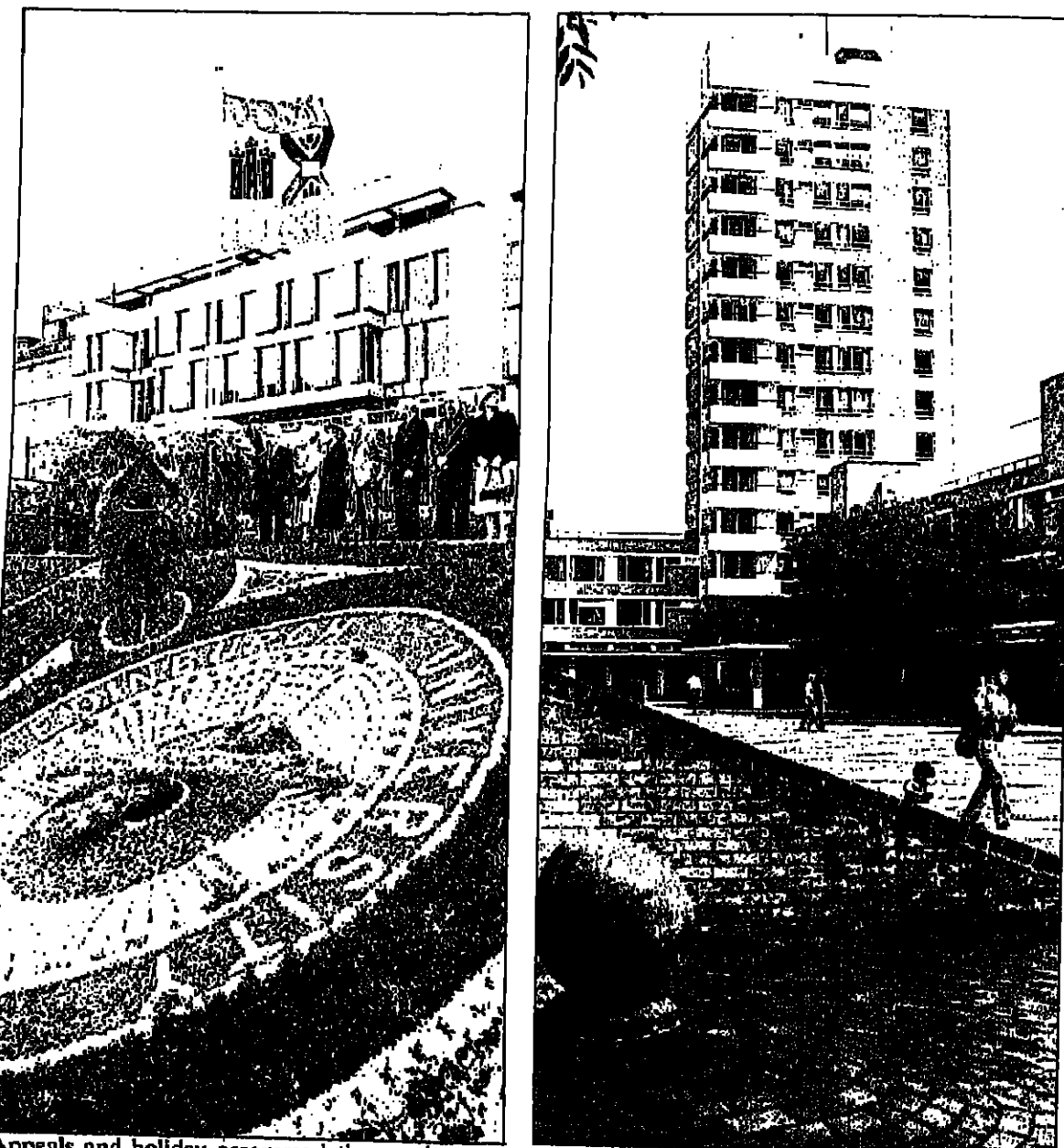
But we certainly do not believe, that by so doing, we "sell the pass" on the principle of state funding. If anything, we hope we suggest that some of the initiatives advanced in the report – for example, a more active cultivation of graduates, as one of a number of "publics" that have frankly been neglected by many universities in the past – may not only produce a new source of income, through "private" fund-raising, but an extra community of supporters at large, when the universities' share of the national public expenditure cake is being determined.

We also preach "realism" over what is really feasible by way of augmenting funds from non-traditional sources, particularly in the short term. References by the present Secretary of State for Education and Science, Sir Keith Joseph, to some 10 per cent of university national annual income from grants and fees currently running at about £1,350m being raised from private sources, is certainly not seen as falling within that category.

In the area of marketing university services, by, for example, undertaking more research, sponsored by private industry, it needs to be pointed out that most income generated from that source, even where a good measure of overheads are charged, is reflected in correspondingly increased costs. Again, while we do put the case for a businesslike approach towards patenting university-originated products and processes, the breakthroughs that are capable of producing a sufficient volume of royalties to make a significant contribution to the average university's running costs are few and far between.

And in the area of appeals, even if some of the measures associated with large-scale private funding in North America – like a tax system more directed towards encouraging philanthropic gifts – were to be conceded by government, the amount of private income generated is likely to be marginal in terms of universities' recurrent budgets for many years to come. For systematic and large-scale giving to

Earning power



The Conference of University Administrators last session established a working group to produce a report on supplementing university income. The convenor was John Kelly, bursar of Bedford College, London, and his co-members were Tony Davies, administrative secretary at Southampton University, Ray Footman, director of information

and public relations services at Edinburgh University, Christabel Lee, assistant registrar at Oxford University and Richard Mawditt, secretary and registrar at Bath University. The group's report will be formally published in August. Ray Footman, writes on some of the themes in the report

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I should, perhaps, reinforce that by pointing out by far the largest sections of the report are devoted to drawing together information on relevant developments and instances of successful practice across a range of fields which at least hold some prospect of augmenting university incomes. In so doing, we decided not to try and produce a jointly agreed set of "model" procedures (we knew all universities were "different"), but to draw on the particular experience of different members of the working group each of whom concentrated on one or more sections and consulted colleagues in the relevant fields in other universities, as well as groups outside.

The areas on which we focus are:

- general income (covering overseas student fees, extramural or extension studies and exploitation of university facilities);
- income from industry and commerce (dealing in particular with finance for venture and risk capital projects, industrial liaison and university companies, science parks, patents, distribution of revenues and capital for new building);
- alumni relations (ranging over total numbers, identification and contact, services, events, organization and staffing); and
- appeals and fund-raising (prospects, friend-raising, backers, canvassers and constituents, staffing and techniques and tactics).

The Government decision in 1979 to assume, in determining university grants, that "economic fees" would be charged to overseas students, faced universities not simply with implementing a policy to which many objected in principle, but with the, at least theoretical, choice between cutting back on staffing levels or marketing their educational services more aggressively to those students who could afford to pay the new fees. The

report looks at the implications of these options, draws attention to the fact that some universities have actually increased their percentages of overseas students above the 1979 level by professional marketing and also to some of the collective initiatives now being mounted.

The following section suggests that universities' approach to the likely future growing demand for post-experience and recreational education need not be limited to low fee courses on the traditional extramural model. It could also, in appropriate areas, capitalise on university facilities and academic resources to mount courses which, while educationally valid, can also tap identifiable markets on a full cost basis with the prospect of economic return to sponsoring departments and the institution.

The university facilities section focuses in particular on the maximum utilization of university residential accommodation over vacations and recent managerial and marketing developments, both at an individual institutional level and nationally, as through the increasing role of the British Universities Accommodation Consortium (BUAC). It also draws attention to the need for universities to invest in the maintenance and modernization of their residential accommodation if they are to satisfy the demand for reasonable but high standard facilities for conferences and the tourist trade.

A wide-ranging chapter on industry and commerce looks at university industrial/commercial relationships principally, though not exclusively, in terms of the prospects for income generation. The section on finance for venture and risk capital projects, surveys some of the commercial and government agencies providing funds, from £2,000 up to £250,000, to back new businesses. Reference is also made to the role of university industrial liaison officers and the pattern of development in commercial com-

panies founded by universities. A substantial section deals with the currently very fashionable "science park" movement, and compares the background in which many of these were developed in the USA with the somewhat different position in Britain. It also considers in some detail the factors thought to be associated with successful science park developments and reserves judgement as to whether there is real potential for universities generally to generate much income thereby, though pointing out there may be other grounds, such as fostering closer contacts with industry and commerce, to justify their introduction.

The possibilities of product/process development through patent protection are outlined, as is practice in internal allocation of revenues from exploitation of discoveries – where a 1983 survey of 23 British universities showed the distribution of staff of the proceeds ranged from 33 per cent to 100 per cent. The section on capital for buildings provides some suggestions for partial or total funding of developments which, in the current public expenditure climate, have little prospect of complete or even contributing funding from University Grants Committee sources.

My own main contribution to the report comes in the two final chapters. The one on alumni relations – backed up by an appendix based on a survey of answers from 34 British universities and colleges to an early 1984 questionnaire on alumni relations and fund-raising – examines and supports the case for increased university activity in this area, both in terms of greater graduate involvement in and support for their former universities generally and of the prospect of eventual financial returns. The point is forcefully made, however, that opening an initiative in graduate relations with a request for funds, is putting the cart before the horse, and not usually the best base either for closer alumni involvement or financial return.

The chapters on appeals and fund-raising, suggests that North American experience, while not a model for introduction in Britain, contains a number of features that have already been experimented successfully with by one or two British institutions. The supporting survey referred to above, indicates that around half of the 34 institutions covered have either recently concluded, are currently mounting, or are about to launch an appeal, with sums raised varying from £1,000 to £2.1m. Apart from the general issues, the chapter also considers some detailed questions of staffing, management and techniques and tactics in planning and launching an appeal. It argues that the changed circumstances in which universities now find themselves may indicate the need for appeal efforts to be made on a continuing, rather than occasional basis, and points to some of the factors in national policy for higher education funding which may need modification if the full potential for private fund-raising is to be realised in the longer term.

One of the interesting features that struck most of us on the CUA group was the lack of basic source material about fund-raising in a specifically British context. We were, of course, aware that the Committee of Vice-Chancellors and Principals was currently mounting its own study which is also to be published shortly and had, at an early stage, a useful informal exchange of views with its convenor.

Members of our own group are all, I think, aware that our report represents only a preliminary attempt to identify the main areas where development – given the will – exists, and that much work remains to be done. It was principally the needs of universities, administrators and others involved in considering or implementing policy in areas where they or their institutions had no direct experience, that we had in mind in preparing the report for the present, encourage more training provision for administrators and policy-makers in this field and stimulate more published material.

Boosting University Income: Report of a CUA Working Party on Supplementing Sources of University Income in Great Britain. Published monthly by CUA. Copies sent free to members by CUA. Copies £2.99 (£2.50 to current CUA members), or £4.50 inc. sealable over-seas. From Mr R. Clarke, University of Reading.

The author is director of information and public relations services at the University of Edinburgh.

Uncovering the nature of science

Harry Collins and Steven Shapin argue that non-scientists need radical new ways of learning about the natural world

In the late 1940s, reflecting upon the place of science in the liberal democracy and upon public understanding of science in the aftermath of the atomic bomb, the president of Harvard University James B. Conant concluded that a radically new approach to the teaching of science was required. He argued that a proper understanding of what he called "the tactics and strategy of science" was an essential component in the education of the future citizen. Turning programmatic statements into pedagogic practice, Conant and his colleagues soon produced the celebrated *Harvard Case Histories in Experimental Science*, modelled partly upon teaching materials employed in the Harvard Business School.

For Conant a realistic understanding of experimental practice was vitally important for the student who was not going to acquire this understanding directly, at the scientist's bench. For democracy to work in an increasingly scientific and technological society, the citizen had to be put in a position where he or she could not merely see the scientist's product but also grasp the means by which scientific knowledge was generated and evaluated.

Without such information the citizen, however "highly educated and intelligent", will almost always fail to grasp the essentials in a discussion that takes place among scientists; this will be because of "his fundamental ignorance of what science can or cannot accomplish". A citizen who was ignorant in this way, Conant argued, was abdicating his rights of citizenship.

Thirty-five years later, Conant's analysis is even more pertinent. The vast resources demanded for the support of Big Science, the technical sophistication required for comprehensive environmental and military issues, the increasingly common spectacle of scientific experts disagreeing in the media and the law courts and, of course, the sheer scale and speed of technological change and its influence on citizens' lives, all call upon educational institutions and teachers to respond anew to Conant's programme for the education of the citizen in "the tactics and strategy of science" has not met the challenge.

Happily, the conceptual resources available for addressing Conant's problem have recently become more refined and more suitable for the task. Conant concluded that the best way to give the student a sense of the actual nature of science was through a selective exposure to its history: a history which depicted not an idealization of science but scientific practice as it really was and as it had really developed as human activity.

At the time Conant compiled the *Harvard Case Histories* the academic discipline of the history of science was in its infancy: hagiographic history dominated, philosophers' idealizations of "the scientific method" strongly coloured historians' accounts and the speciality called the sociology of science, to the extent it existed, was concerned with the normative structure of the scientific community rather than with scientific knowledge and practice. Interestingly, one of the seminal texts which has helped to change all this arose from the pedagogic initiative Conant set on foot: Thomas Kuhn's *Structure of Scientific Revolutions* acknowledged the influence of Conant and drew many of its exemplars from the *Case Histories*.

In the two decades since Kuhn's *Structure*, and particularly with the development over the past 10 years of the sociology of scientific knowledge, a "new history and sociology of science" literature has come into being. This is a literature marked by its rejection of a priori idealized models of science. It replaces these, with painstaking detailed accounts of actual experimental practice and the social processes by which scientific arguments are resolved.

The existence of the new history and sociology of science literature creates both problems and opportunities for those concerned with the teaching of science. Before its availability, there was a rough "fit" between the idealizations of science found, on the one hand, in the typical science textbook and, on the other, in the accounts of science, the history and the philosophy of science. This is no longer the case.

Those concerned to educate the public about the nature of science now have not only the opportunity but also the obligation to choose how to tell the story.

What is the teacher to do with this

new literature? The choice depends on whether "radical" or more "reformist" innovations in science education are required. Do we want to use history of science merely to "humanize" science education, while retaining its existing goals, structures and materials?

Given the real constraints posed by the existing curriculum, the lack of time available for more ambitious changes and the conservative tenor of much scientific education, this may be the only realistic goal. However, the main, if not the entire potential for the pedagogical use of the new literature is in the radical rethinking of the aims of educating non-scientists.

Start by considering the putative ambitions of a science teacher entering a classroom at 9.30 on a winter morning. What might such a teacher have in mind? These four goals do not seem unreasonable: to enable children to do science properly; to enable children to show future citizens the nature of science, to begin to teach future scientists how to do science and to teach children about some features of the natural world.

Under the "received model" of scientific rationality these four aims coincide easily. The crucial characteristic of the received model is the contention that unbiased methods of investigation will reveal unambiguous, unique and repeatable true facts about the natural world. Thus in learning to do science properly children uncover true features of the natural world and learn, in passing, the nature of science, ie, that careful, unbiased experiments are repeatable and do in fact reveal the truth.

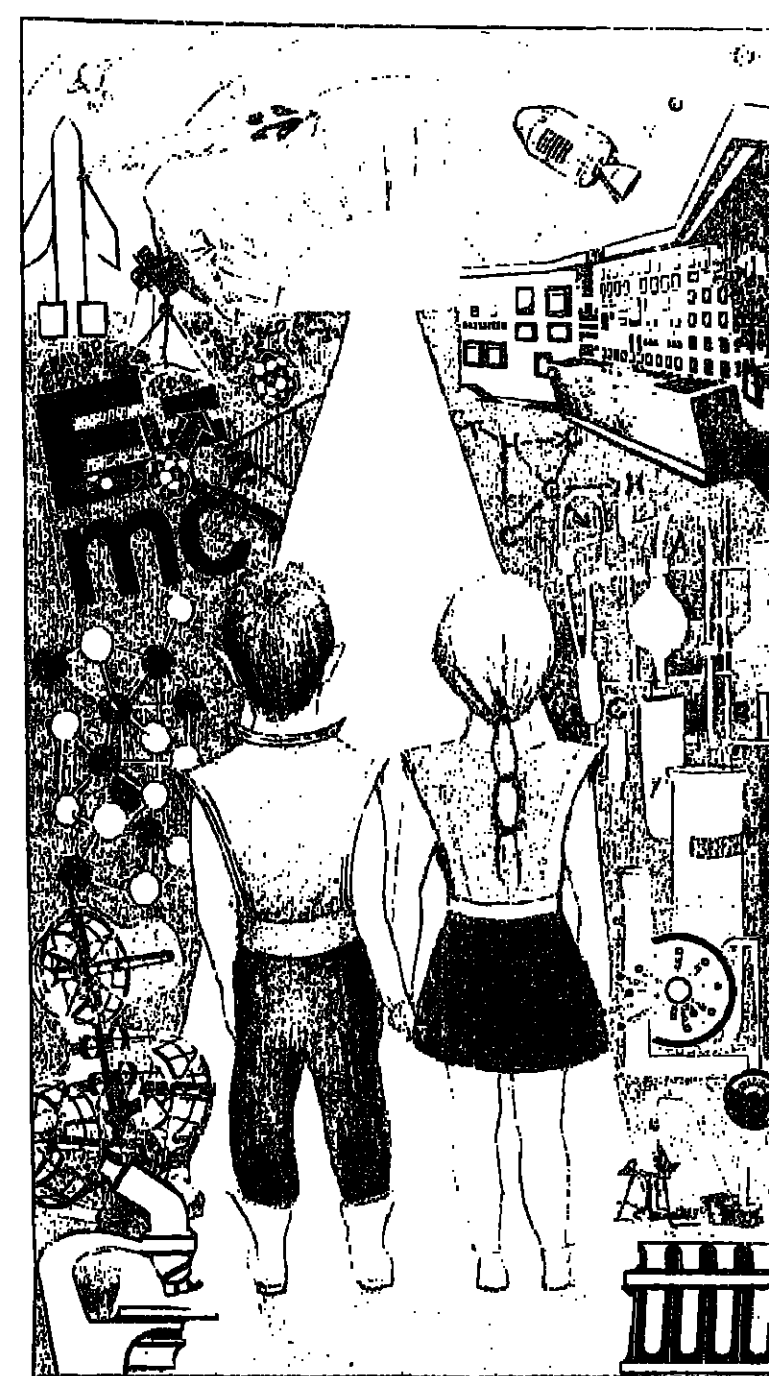
The tension between discovery methods and more didactic methods of teaching us ways of fulfilling these ambitions is only a tension between, on the one hand, stress on learning features of the natural world and passing examinations and, on the other, stress on learning about science and learning to do it. Given that all four aims can coincide under discovery or didactic methods, the tension does not have to involve deep questions about the nature of science.

The new history and sociology of science differs from the received model principally in rejecting the view that unbiased and competent observation and experimentation is in itself enough to reveal unambiguous repeatable facts. The new view holds that how something comes to be seen as true, unambiguous and repeatable is a social process and, therefore, that it is a matter for empirical study.

The "same" region of the natural world may seem to precipitate different facts when observed at different times or places, even though similar scientific methods are used. That there is at any given period broad consensus within the scientific community about the make-up of the natural world is to be taken as a feature of the social organization of science rather than as a passive, mirrored reflection of the structure of natural reality.

Within this perspective it is unsurprising that scientists disagree about radically new areas of research since, by definition, no consensus has yet been formed; it is unsurprising that established consensus sometimes breaks down and even from time to time that agreements are overturned in a wholesale way – Kuhn's "scientific revolutions".

This means that science comprises more than one sort of activity. It comprises work within a broad consensus – "normal science" – use Kuhn's term – and periods when findings cannot be quickly fitted into the prevailing paradigm. Under these conditions a failure of expertise to bring about consensus over the constituents of the natural world is very evident. And in



science between the aims is no longer straightforwardly realizable; there are now some ambiguities. If we are to teach the nature of science, what sort of science is it? What sort of science are we to teach children to do? And: what features of the natural world do we want to teach?

As for this last we probably want to convey aspects of the current consensus. But do we represent them as features of a consensus or as immutable facts? The answer to this question is not separable from the answers to the others.

Experiments conducted within normal science depend upon specifying a fairly narrow range of permissible outcomes in advance. Experiments, like every other technical accomplishment, require the exercise of reliable skills. Thus an experimental run which produces results outside the expected range is accounted, and assessed as, a failed run. This retrospective assessment procedure is one of the ways that consensus is maintained in normal science: anomalous results are excluded by fiat.

Extraordinary science, on the other hand, explores regions in which a well-defined range of experimental outcomes is not available. For example, in the early 1970s debate over the existence of cosmic gravitational radiation, the question was not "How much gravitational radiation is there?" but rather, "Is gravitational radiation detectable on earth?" In such a situation it is often unclear whether a scientist has developed the skills to make the experiment work. The scientist is not able to refer to the acceptable range of experimental outcomes in order to determine if that experiment should be accounted a success or a failure.

In extraordinary science scientists tend to disagree about what is to count as a successful experiment, eg is it one that has detected gravitational radiation or is it one that has not? Science of this sort is confused, unclear, indecisive, often characterized by bitter personal dispute and long-running controversy. Under these conditions a failure of expertise to bring about consensus over the constituents of the natural world is very evident. And in

these circumstances the received model of scientific rationality is most clearly wanting.

Nearly all science is "normal science". In so far as the concern of the science educator is to begin the training of scientists, then it is the abilities associated with the practice of normal science that ought to be taught.

Nevertheless, several features of the understanding of science offered by the new history of sociology of science could be considered even here. For example, it has been suggested that there is often a sort of "trauma" attending the passage from the state of being a science student to the state of being a scientific researcher. If the science student is wholly trained in circumstances where the answers are pre-given in the questions, he or she may experience disorientation when confronted by real science. In real science the range of answers may not be known in advance, and (particularly in extraordinary science) the existence of natural phenomena cannot be decided so simply as it seemed to be in the classroom or in the undergraduate teaching laboratory.

There has been concern over "dropout" or "wastage" at this stage of the production of scientists. Wastage might conceivably be diminished by exposing science students to the contingencies affecting real scientific experimentation, including the social processes by which scientific consensus is brought about.

More important however, the future citizen and the democratic society of which he or she is to become a member, is ill-served if education provides only the "ideology" of science. One of the most important reasons for saying this involves the problem of "anti-science" attitudes.

As we have indicated, disagreements among scientific experts is an increasingly visible feature of modern scientific and technological society. Experts disagree and citizens (and the institutions which are said to be answerable to the citizen) are asked to react and to decide. How will the citizen react to the spectacle of disagreeing experts if he or she is offered only the passive mirror model of

scientific knowledge? The reaction will be polarized. In the mirror version, facts are either wholly true or wholly baseless.

If this is what is believed, then disagreement among experts will generate profound disillusionment about what is taken to be science as a whole. Scientists, it will be thought, are all incompetents, or liars, or intellectuals available for hire to powerful interest groups. There will be no shades of opinion, no feeling that disagreement is natural to much of science; no tendency, that is, to cope with the spectacle of disagreeing experts as an endemic feature of "good" science.

Thus, the "ideological" version of science, so often believed to be the best way of guaranteeing proper respect for science in a democratic society, may actually be responsible for much of the anti-science attitude that concerns scientists and science teachers. The new perspective, contrarily, may assist the future citizen in regarding scientists as "the best possible experts", while not generating the unreasonable expectations and consequent polarizations which are responsible for anti-science opinions and the exclusions of the citizen from responsible participation in such matters.

School and university science teaching has the potential to reveal the real nature of science to the future citizen. Anomalous results, which must be immediately reinterpreted as experimental errors if the mirror model is to be properly internalized, should be displayed as typical outcomes of experiment in extraordinary science.

It is the very *disorganization* of the discovery method of teaching – its greatest inability in terms of conventional goals – which has heuristic value seen from this point of view. The student can be shown why there is disagreement and disorganization when experts are asked to comment upon matters at the limit of their expertise. Demonstrating this becomes the point of the discovery method.

Moreover, the next step, the process of forming the consensus from this chaos, can be practically revealed in the classroom. After all, the students, when they are being taught as potential scientists, are being shown how to reduce disorder to order.

This is what their practice comprises when informed by the received model of scientific rationality. Classroom experiments continue as before, but it is the social organization of consensus that is the focus of attention rather than an abstract idea of the proper outcome of the work. The achievement of consensus in the classroom is taken to be a microcosm of the achievement of consensus – over a much larger time period – in the scientific community.

Now and again, we suggest, students' attention might be drawn to the way the class, in the hour or two under the direction of the teacher, reduces an initially disordered set of quasi-findings into experimental support from the "correct" hypothesis. The parallels between the classroom lesson and the life histories of scientific controversies, as they move towards closure, are striking.

Although these are clearly very early days for the project of incorporating the new history and sociology of science into innovative science teaching, some provisional practical recommendations can be offered. First, the time is ripe for new teaching resources along the lines of the *Harvard Case Histories* developed 35 years ago. Just as Conant drew upon the best historical accounts of the actual nature of science available to him, so we can now do the same, using the radically different picture of science provided in the new literature. However, the aims will be very much the same as Conant's and our target will be very much the same as that envisaged by him: the group of students somewhere between the last years of school and the early years of university education.

Second, we have suggested that the actual teaching of experiments could (at least occasionally) be turned into a topic for study and reflection. Along with teaching students the appropriate skills and aspects of the natural world, we could make experimental teaching into an object lesson in the processes by which scientific skills are transmitted and social consensus about reality is produced.

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Pauline Stafford

Portrait of the arts as a national status symbol

It was a week which delivered two body blows to the English art world, with the sale of the Duke of Devonshire's old master drawings followed within days by the auction of Turner's seascapes by Lord Clark's family. Individual items fetched astronomical prices: £3,564,000 for a Raphael head, the Turner a record figure of £7,370,000. As the export licenses are arranged recriminations about the loss of our national heritage abound.

The prices paid at these and at several recent auctions have given the art market an air of lunatic unreality. Nothing, of course, has seemed quite the same since the Getty bequest left millions of dollars sloshing around the art market each year in search of objects on which to fix themselves. The Getty money has, however, merely magnified if it has not transformed the principles of the system. Art in the western world, if not elsewhere, has long been an object of lust and status and no simple expression of cultural values, national or other.

The Vikings returning to Scandinavia in the ninth century with church reliquaries or sumptuous book bindings; William the Conqueror sharing out the treasures of the English church among his continental religious backers; Napoleon bringing back the plunder of his Egyptian campaign were all acting as victors do - looting the precious objects of the vanquished as a symbol of defeat, helping themselves to a few extra rewards of victory. By Napoleon's day the emphasis on cultural objects as art and their value as such may have risen, though the Vikings certainly did not reduce all their acquired treasure to so much hack-silver, but throughout art was an accepted and expected fruit of victory.

Nor has the world's cultural inheritance simply been transferred as plunder from the battlefield. Exploration and Empire have done much to fill the halls of the British Museum, and if it can be argued that at least some of these items were paid for, the currency of the transactions was often highly suspect. But especially since the development of a market in art in the wake of the Renaissance it has been economic dominance and success which has done most to transfer works of art. The 71 drawings sold by the Duke of Devonshire at Christie's included a majority of Italian and Dutch masters - Raphael, Mantegna, Van Dyck, Rembrandt and Rubens. Their presence in England is due to the wealth of the duke's ancestors in the seventeenth and eighteenth centuries when the collection was largely assembled. Lord Clark's collection, from which as it happens a work by an English artist has been sold, is largely a fruit of the family's profits as cotton spinners in the nineteenth century. These private collections, which have formed the solid base of many national ones, are expressions of the economic superiority of individual families and of the buoyancy of the English economy itself between the seventeenth and nineteenth centuries. They were acquired on an international market and through systems of commissioning which were themselves the result of changing attitudes to the visual arts during and after the Renaissance.

Artistic objects as the rare products of highly skilled and gifted craftsmen, must always have been prized possessions, always have conferred standing on their owners; the honour accorded to such craftsmen in the courts of the



early middle ages testifies to the social significance of their output. But with the rise of the concept of the cultured gentleman, the ideal of the educated nobleman versed in the arts and an active patron and collector, art became even more bound up with expressions of status. Lorenzo de' Medici boasted of his family's expenditure of 663,755 gold florins on charity, taxation and artistic commissions; the brilliant light it threw on his house made it money well spent in his eyes. His attitudes, if not his candour, could be matched in most New Year's honours' lists. Public art remained, also often a visible celebration of success, but much visible art took on the function of a status symbol. This is not to imply a value judgement on its quality, nor to impugn the cultivated motives of many of its patrons, merely to stress how deeply western art is entwined with military, economic and social superiority, how long it has been valued as a commodity. The mechanisms of its distribution have been plunder, the commission, still of central importance in architecture, and especially for paintings and small-scale visual arts, the art market.

That market is acutely sensitive to economic and related changes. There is a clear if unspoken feeling that the Getty museum (of *Melvin*, I ask you...) has disrupted a gentlemanly world and contravened the rules of fair play whereas it has merely thrown into stark relief the implications of shifts in the world economy for the market in art. As long as the visual arts are seen as prized status possessions they will be sought and acquired by the currently successful and dominant. The works which English collectors brought here during their generations of triumph will, by the inexorable laws of that same market, now leave.

It is pointless to cry about the national heritage. Much of the contents of these private collections is only dubiously a part of the English national heritage. If a Mantegna or a Raphael belong anywhere on those lines of argument it must be back in the northern Italian cities where their creators originated and trained. The Turner is a slightly different issue. It is unclear at the moment whether the painting in question will leave the country. If it does it will be ironic that such a part be played in dismantling the national heritage by the family of a former director of the National Gallery, surveyor of the king's pictures and chairman of the Arts Council, one of whose sons currently holds a post in the Conservative Government. But the loss of a fine work by an outstanding English artist would be merely a logical if unfortunate result of the workings of the market.

That market has produced prices which the national museums cannot and should not attempt to match. Public spending as a whole and on the arts in particular is too inadequate and justifies enormous disbursements on single items. Behind our shocked responses lies a deeper hypocrisy. Few are questioning the functioning of the art markets and the past benefits they have brought to us; few take seriously questions of national cultural heritage when it is the Elgin marbles or the Benin bronzes which are at stake. Without such questioning of the rules of the game our current reactions look suspiciously like an attempt to blow the whistle while we are still winning.

Danger: artists at work

It is difficult to think of any field of activity that encompasses more processes and techniques than the arts and crafts. A single college of art and design might simultaneously contain students mixing pigments, casting metals and plastics, operating machine tools, cutting, grinding or blowing glass, etching, silkscreen printing and working in a variety of other related media. Outside educational institutions, an ever-expanding number of individuals are establishing small art and craft workshops where they practise and experiment with an equally diverse range of activities and materials.

Given that, it is somewhat alarming to note the lack of attention paid to the subject of safe practice within the arts and crafts. For instance, artists use materials proven to be hazardous in industry with complete disregard for safe handling procedures. Kitchens are converted into *ad hoc* studios where solvent or lead fumes reach potentially lethal concentrations and students ignore regulations by smoking freely in ceramics studios, apparently oblivious to the risk of increased silicosis ingestion.

Dr Michael McCann is a leading authority on occupational hazards in the arts in the United States where, in marked contrast to Britain, the subject is given a great deal of attention and coverage. In *Health Hazards Manual for Artists*, Dr McCann even reports one instance of a four-year-old boy being poisoned while his parents were soldering stained glass leading in their kitchen.

In Britain, the lack of a structured organization within the arts and crafts, as opposed to industry, makes the collection of relevant accident statistics a difficult and unenviable task. In 1971, for example, the North-West Regional Advisory Council for Further Education attempted to make some headway into this statistical vacuum with its report *Safety in Establishments of Art and Design*. Fifty-three colleges of art and design were examined, revealing that, on average, 1.34 per cent of all art students had suffered a reportable accident during the 1968/69 session. Individual returns ranged, however, from 0 to 3.7 per cent.

A phenomenon attributed to differing standards of reporting, recording and presenting accident figures rather than safety consciousness. It seems apparent that although hazards in the arts do exist and accidents undoubtedly occur, the lack of a comprehensive accident-figure-publication policy or official guidelines concerned specifically with safety in the arts and crafts results in the subject as a whole not receiving as much attention as it deserves. This is not to say, however, that the subject is totally ignored. For instance, where creative arts are institutionalized, primarily in education, awareness of safety standards and regulations is consistently quite high. Polytechnic safety officers invariably associate with representatives of many diverse fields, including the sciences, industries and trade unions, and serve to remind artists that, whether self-employed or in education, they are not exempt from the provisions of the Health and Safety at Work Act 1974. This Act broadened the spectrum of personal responsibility for welfare at work, whether the danger concerns oneself, colleagues, employees or members of the general public. A self-employed person is defined in the Act as an "individual who works for gain or reward otherwise than under a contract of employment, whether or not he himself employs others" (Part 1 Section 52), thereby including artists and craftspeople with their own business or workshop.

Procedural compliance with the law, however, or the formulation of individual college safety policies, provides no real answer to health and safety problems within the arts and crafts. The Health and Safety at Work Act is primarily concerned with industry; the artist who stands to poison himself and his family by using solvents or soldering lead joints whilst cooking and eating areas, does so through ignorance rather than a conscious reluctance to adopt expensive legal safety standards, which may slow down production rates.

Even if legislation specifically concerned with safety in the arts did exist, there would be a major problem of administration. Regulating the activities of thousands of art students would be a daunting enough task, but to monitor the activities of individual



Tim Challis and Gary Roberts discuss the problems of safety in the studio

once they left would be virtually impossible.

Whereas employees in most other professions can rely on employers or unions to monitor safety in the working environment, artists and craftspeople are forced to look after such matters themselves. Colleges are covered to a certain extent by occasional visits from Her Majesty's Inspectorate, but safety matters outside education are left completely to the discretion of the individual artist.

Artists and craftspeople must learn to exert their own control over health and safety. This can not come about by legislation, but by the provision of effective education in health and safety matters by educational establishments of art and design. As far as the authors are aware, however, not one college of art and design in Britain includes health and safety research methods as part of the course curriculum, although Sunderland Polytechnic is moving in that direction. There seems to be three main reasons for this: i) artists display a definite reluctance to stop and consider the potential hazards of materials they use, as if such an attention policy or official guidelines concerned specifically with safety in the arts and crafts results in the subject as a whole not receiving as much attention as it deserves. This is not to say, however, that the subject is totally ignored. For instance, where creative arts are institutionalized, primarily in education, awareness of safety standards and regulations is consistently quite high. Polytechnic safety officers invariably associate with representatives of many diverse fields, including the sciences, industries and trade unions, and serve to remind artists that, whether self-employed or in education, they are not exempt from the provisions of the Health and Safety at Work Act 1974. This Act broadened the spectrum of personal responsibility for welfare at work, whether the danger concerns oneself, colleagues, employees or members of the general public. A self-employed person is defined in the Act as an "individual who works for gain or reward otherwise than under a contract of employment, whether or not he himself employs others" (Part 1 Section 52), thereby including artists and craftspeople with their own business or workshop.

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resources, that contains the key for improvement. Most fine art courses contain a 20 per cent art history element; a portion of the academic skills encouraged and developed in this could easily be rechannelled into the research of potential hazards of art materials and processes, an exercise every bit as relevant to studio practice

as the study of art history. The development of academic skills and the subject of health and safety in the art could therefore mutually flourish.

The scope for improving artists' knowledge of health and safety is tremendous. For instance, although the Health and Safety at Work Act 1974 demands that manufacturers and employers commission research into the hazards and safe handling of materials, this is largely ineffectual if artists using those materials are not aware of their right of access to such information. As almost all materials used by artists are already used extensively within industry, artists could be encouraged to utilize relevant industrial statistics and research to discover more about potential hazards in their own working environment.

Likewise the Packaging and Labelling of Dangerous Substances Regulations 1978 lists 800 chemicals, at least 200 of which, including 12 that are recognized or suspected carcinogens, are commonly used within the arts and crafts. Most of these chemicals have been awarded a threshold limit value (TLV) by the American Conference Government and Industrial Hygienists. In Britain, TLVs are published in the *Health and Safety Executive Guidance Note EH 15/80*. They are used as measures of safe exposure levels to a given chemical as calculated for work schedules of five eight-hour shifts in a 40-hour week. Lead, (inorganic) leads to dust or fumes, has a TLV of STEL 0.45mg/m³, TWA 0.15mg/m³. Art students will probably find these figures indecipherable, and as a result may dismiss them as irrelevant. However, once art students leave college they often open small workshops or studios; if lead is present in the studio atmosphere, as would be the case in a ceramics studio for instance, the ability to understand these figures and monitor the working environment accordingly, could be the difference between good health and lead poisoning.

Similarly, art colleges could advise students on how to utilize the specialist knowledge of trade union health and safety groups and the Health and Safety Executive for help with safety matters; no one would expect artists to analyse atmospheric samples put them in touch with qualified analysts.

It seems that if art students were channelled into safety education, the standards of health and safety-consciousness within the arts would vastly improve. The last two decades have seen the art world flooded with new materials and processes that have already been proven hazardous in industry. Let us hope that it is not another two decades before the real issue at stake regarding improvement of health and safety standards within the arts.

It is the third argument, concerning resources, that contains the key for improvement. Most fine art courses contain a 20 per cent art history element; a portion of the academic skills encouraged and developed in this could easily be rechannelled into the research of potential hazards of art materials and processes, an exercise every bit as relevant to studio practice

Tim Challis and Gary Roberts are the authors of *Caution: A Guide to Safe Practice in the Arts and Crafts*, available from the Health and Safety for Artists Project, Sunderland Polytechnic, Mowbray Villas, Ryhope Road, Sunderland, SR2 7EE.

BOOKS

I can see it in my mind's eye

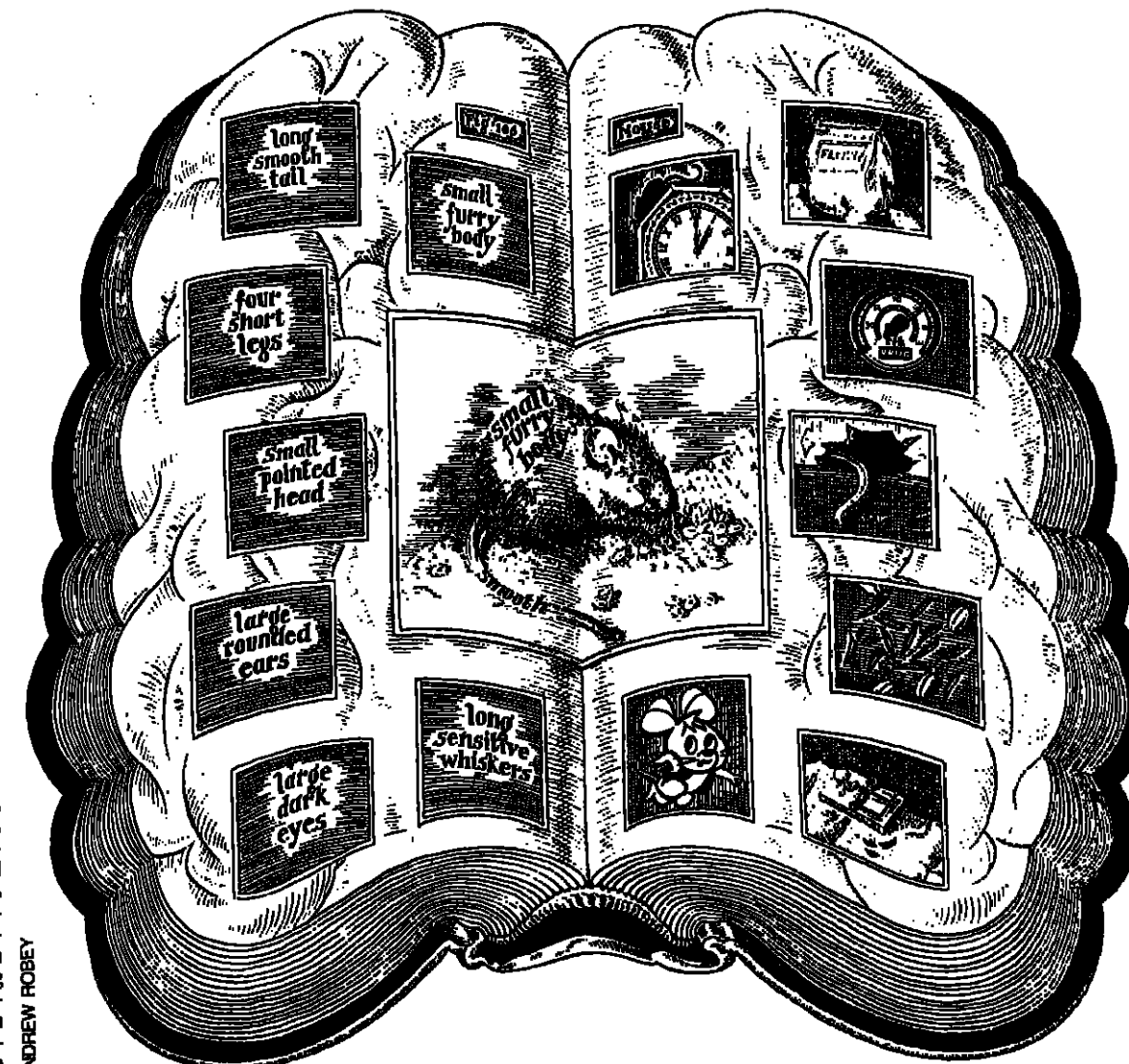
by John Richardson

Ghost in the Mind's Machine: creating and using images in the brain by Stephen Michael Kosslyn
Noron, £15.95
ISBN 0 939 95257 6

Stephen Michael Kosslyn is well known as a major contributor to research in cognitive psychology. During the 1970s he carried out many important innovative experiments to explore the nature of mental imagery and its role in thinking and problem solving, and then turned his attention to the task of developing a theory of mental imagery which could be implemented as a computer program. His book presents a personal account of this research, deliberately aimed at a general readership.

It begins predictably by describing the inadequacies of the behaviourist movement which dominated experimental psychology in the English-speaking world from the 1920s to the 1950s, and identifies two influences which contributed to its decline: the conceptual and theoretical developments associated with Chomskyan linguistics, and the technological development of the modern digital computer. However, he omits the more fundamental point that psychologists had begun to doubt behaviourism's ability to describe associations between stimuli and responses, and wished instead to develop theories about hypothetical mechanisms underlying observable behaviour. The development of computer technology in the 1950s provided the enticing metaphor of the information-processing system at exactly the point when experimental psychologists were seeking new models to explain human cognition. This made it possible to retain the essential elements of behaviourist methodology within a richer and more sophisticated approach to scientific explanation.

Kosslyn is thus somewhat misleading when he talks of the "demise" of behaviourism, and he underestimates the pervasive influence of the behaviourist tradition in his own research. For example, when discussing the mind/body problem as the philosophical basis of his research, Kosslyn seems to define the problem as one of "how two such disparate things could be interconnected". This is odd, because it already presupposes Cartesian dualism as a solution to the mind/body problem: the question of how mind and body could be interconnected only arises if they are assumed to be two separate things. Even more curious is Kosslyn's suggestion that the mind/body problem consists of two separate problems: the nature of conscious experience (though he does not actually say this) and the nature of the virtually intractable and certainly



not open to scientific investigation; and the problem of how the mind functions or operates (the province of cognitive science).

Kosslyn thus offers a peculiar form of dualism, but one which is tantamount to a methodological behaviourism. For instance, he states that cognitive science developed out of a number of disciplines which "seized on the notion that mental function could be studied independently of consciousness". He rehearses the problems involved in an introspectionist approach to the study of human cognition, and argues that psychologists should instead be concerned with the observable, measurable consequences of mental functioning in overt behaviour. Although he himself has to refer to introspective reports from time to time, his basic attitude is that mental experience may well be entirely epiphenomenal with regard to cognitive activity.

The narrative becomes more interesting when Kosslyn uses a com-

puter metaphor to give an account of the nature of mental imagery. He starts by rejecting outright the idea that images can be likened to "pictures in the head". Mental images are typically three-dimensional rather than two-dimensional; they are normally static, but can be manipulated and transformed; they are experienced as scenes which we participate in, rather than as objects which we observe. Kosslyn regards it as totally incorrect to talk about any "inner screen" on which images might be projected, any "inner eye" through which they might be observed, and any "homunculus" or inner beholder of mental images. Instead, he provides a theory to account for mental images in the way that they are likened to the spatial information stored in a computer which gives rise to displays on monitor screens. The point about this analogy is that spatial information does not have to be realized on the monitor screen in order to be retrieved and used by the computer. Rather, it can

be directly employed as if it were displayed in such a manner on a monitor screen. Within this framework, the notion of the "mind's eye" can be interpreted as the various tests which evaluate and interpret the information which is stored in a digital form, with no reference to any mysterious agent or "homunculus".

How does all this fit into a general account of mental function? According to Kosslyn, human beings have at least two important ways of representing and storing information. Mental imagery constitutes a "depictive" form of representation which takes on meaning by virtue of the resemblance between the stored information and the objects and events in the real world. Kosslyn describes a variety of experiments designed to explore the properties of this representational format. These required the subjects to generate, scan, inspect, and compare mental images of common objects of different apparent sizes and at different apparent distances. These experi-

ments are ingenious in themselves, and also incorporate sophisticated controls to rule out the possibility that the subjects were faking their results in response to subtle cues from the experimenter. He also describes in considerable detail a computer model designed to simulate the cognitive processes involved in these studies, and he mentions various experimental tests of the model concerned with the way in which images can be manipulated and transformed. On the other hand, it is also possible to represent and store information in an abstract form by systems of propositions. This is a "descriptive" form of representation which takes on meaning by virtue of the rules and conventions governing the interpretation of linguistic symbols.

The two types of representational format are supposed to have their own distinctive properties, and it is therefore open to empirical investigation which of the formats is responsible for performance in any particular task. Naturally, mental imagery is likely to be used when propositional descriptions are not available, whether because they have not been stored in memory, because they are too complex to retrieve from memory, or because they are too complicated to yield the response which the subject is required to give. In other cases, both formats may be used, and the pattern of results will depend upon which system "wins the race" to provide the required response. Kosslyn illustrates this point by reference to experiments on "mental comparisons", in which subjects compare two named objects in terms of their physical size. In deciding whether a mouse is bigger than a hamster, for example, both experimental results and subjective reports indicate that subjects generate mental images, but that practice and training make it possible for propositional information to become available and effective in making such a decision.

Cognitive psychologists will be frustrated by this book: the author often fails to give precise documentation of previous research, and it is sometimes not clear whether the studies which he describes have even been published. Specialists readers must content themselves with Kosslyn's more scholarly work *Image and Mind* (Harvard University Press, 1980). Moreover, as the account is very much geared to the author's own predilections rather than to more general theoretical developments in the field, I would hesitate to recommend it to my students. However, the book is very well written, at just the right level for non-specialist readers. As an exercise in public relations on behalf of the new, hybrid discipline of cognitive science, it is highly commendable.

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AI guides

Artificial Intelligence (second edition) by Patrick H. Winston
Addison-Wesley, £15.95
ISBN 0 201 08259 4

Artificial Intelligence: tools, techniques, and applications edited by Tim O'Shea and Marc Eisenstadt
Harper & Row, £12.95
ISBN 0 06 041894 X

Artificial Intelligence (AI) is still terra incognita for most people: so fresh maps for the newcomer must have a useful role to play. These two introductory books chart the territory for different types of reader.

Winston's textbook is aimed not only at the student but also at the industrialist and the general reader. Students will find it very useful (despite the fact that many of its recommendations betray the "hot" syndrome, to which the Massachusetts Institute of Technology seems to be peculiarly suscep-

ble), but its bland textbook-style may irritate some of its wider audience. The bad news for librarians is that the book differs extensively from its first edition, published in 1977. The author's revisions have improved the book significantly, so libraries possessing the first edition will have to buy this one too.

The new chapters on image-processing and robotics are especially useful, for it is in these areas that there has been most theoretical advance since 1977. Winston has been closely associated with pioneering work in these areas carried out at MIT, where he has for many years been Director of the Artificial Intelligence Laboratory. Computer models of vision, in particular, have changed radically since the first edition of this book. Winston highlights in the first edition of this book the current achievements and problems in building "seeing robots", providing some mathematical analysis but eschewing too much technical detail. (More detail on these matters is provided in O'Shea and Eisenstadt's book.)

There has been less basic theoretical progress in language-understanding programs and "expert systems" (attempts to program a useful level of specialist expertise), but many of the

case-studies discussed in this second edition refer to recent work. The technical chapters on the LISP programming language have been removed to be extended in a separate "companion" volume, but a new chapter has been included dealing with logic and its use in theorem-proving and general programming. "Logic programming" is currently of interest not least because the Japanese "fifth generation" project involves a serious (and controversial) commitment to this computational methodology.

The second book is less suitable for the general reader, despite its "introductory" aims. But it will be useful for advanced undergraduate and research students with a background in computer science or psychology, and for industrialists considering whether they should become professionally involved in artificial intelligence research.

O'Shea and Eisenstadt have combined a number of clear tutorial accounts of some important issues in AI. The coverage in their book, however, is not so broad or so integrated as Winston's single-authored text; in particular, the subtitle must be taken seriously: the editors have indeed concentrated on tools, techniques, and applications. (A further chapter is devoted to the discussion of

text-processing systems, a commercially important application which could be improved by AI ideas.) This is a book intended for people wanting to do work in the field, rather than merely to learn about it.

The basic tool in AI, of course, is the programming language. Most people who have some familiarity with computers but not with AI assume that it uses (and is limited by) programming languages essentially like those encountered in more everyday computing applications. That this is not so is clearly shown by the four chapters devoted to languages especially developed for work in this field, such as PROLOG, LISP, and POP-11 (all of which are combined in the user-friendly POPLOG system, also described here).

Applications in robotics are dealt with in three chapters, one of which (by S. M. Hardy) highlights the enormous difficulties involved in programming and engineering robots capable of the apparently "simple" sorts of movement performed by each of us every day. Other papers discuss natural language processing, expert systems for medical diagnosis and prescription, planning and operations research, and the implications of computer models for cognitive science.

The jewel of the book is an excellent chapter by J. E. W. Mayhew and J. P. Frisby on "connectionist" models of vision. Recent techniques for image-processing (described in less detail by Winston) are here subtly placed in their theoretical context. Those who imagined that a Hough transform is a change of wind-direction will here find themselves gently disabused. The excitement and underlying rationale of recent vision research is well conveyed by this chapter, which should be read by all psychologists interested in vision - whether or not they would regard themselves as interested in computers.

The most unexpected chapter, with which the section on techniques opens, is entitled "How to Get a PhD in AI". This homily contains very useful advice, pitifully expressed, much of which would be of use to people doing research in any of the natural or social sciences. Research supervisors might fruitfully circulate it to their students in lieu of Christmas cards. But it should not have appeared in this book - except perhaps as an appendix.

Margaret Boden

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BOOKS

Aesthetics of poetry

The Romantic Predicament
by Geoffrey Thurely
Macmillan, £30.00
ISBN 0 333 34707 2

A book on Romantic literature which refers in passing to the Japanese *Haiku*, Dante, Donne, Tintoretto, Calderon, Mozart, Leopardi, Proust, Wittgenstein, Debussy, Machado, Schönborg, Mickiewicz, Apollinaire, Büchler, among many others, risks being a very large book about nothing in particular. In fact, Geoffrey Thurely's *The Romantic Predicament* is richly detailed, witty and interesting, as well as far-reaching in its intellectual debates.

It is a book which strenuously pursues the general aesthetic implications of Romanticism, and which refuses to be limited to any particular country or historical period. According to Thurely, the Romantic predicament which defines most European art of the nineteenth and twentieth centuries is the predicament of "alienation". The term is not new, but the energy and ambitiousness with which he explores its significance in post-industrial European literature is impressive. The sheer scope of this book suggests that the author has drawn on a lifetime's reading and thinking. As a result, the pleasure of reading it is a quite demanding pleasure.

Thurely takes issue with two kinds of contemporary critical methods: the ideologically prescriptive and the post-structuralist. Against the first, he argues that art is an experience of reality "for the sake of an experience", not for the sake of any "social, religious, political or ethical" message. Against the second, he argues that interpretations of art must acknowledge reality "in contact or collision" if they are to be more than the "monotonous egotism" of recent French theory. Between these two, he proposes a historical and subject-centred approach to the text: an approach that clearly suits his own broad, interdisciplinary but essentially aesthetic regard for the work of art. He makes his position plain at the start: "The criticism which fails to take the 'aesthetic' experience generated by the work of art as its first object ignores precisely that quality in virtue of which the work is to be valued," he asserts.

This "aesthetic" experience, then, becomes the object of his sensitive and discriminating attention. It is Thurely's concern for the individual poem's subtleties of rhetoric and meaning which shows precisely where this "aesthetic" experience is to be found. But his interpretations are never narrowly formalistic: never just exercises in ingenuity. They always point force-



Wordsworth, 1817

fully in the direction of a general debate about Romanticism. For instance, Thurely compares Robert Herrick's poem "To Daffodils" with Wordsworth's more notorious verses on the subject, and from the particular analysis draws the larger conclusion:

Wordsworth's poem is intrinsically Romantic in the way that the object (the flowers) has to be made into a meaning through the mediation of the poetic imagination. In the seventeenth-century poet, no such act of attention is necessary: it is the meaning (life's transience) which the poet has to re-feel, not the phenomenon.

The difference between the two poems points to the general characteristic of Romantic literature. In it, the phenomenal world has become divorced from meaning, so that it is now the poet's individual task to re-learn where it has been lost. Clearly, however, the impulse behind this restoration is the fear, either that there is no meaning at all, or else that meaning is a purely narcissistic, subjective imposition. This fear, according to Thurely, is not present in pre-Romantic art, but stems from the socially alienated status of the artist in the nineteenth century.

Although *The Romantic Predicament* is a first readable and searching book, Thurely has a way of examining familiar generalizations so as to make them new and taxing. It is the smaller paragraphs of analysis and commentary that carry the conviction of the larger argument. If, occasionally, the theory seems digressive or a little familiar, Thurely's interpretations of particular poems are always rewardingly subtle and surprising. This, in the end, is where the book's strength lies.

Angela Leighton

Angela Leighton is lecturer in English at the University of Hull.

Romantic notions live

The Echoing Green: Romanticism, Modernism, and the phenomena of transference in poetry
by Carlos Baker
Princeton University Press, £30.10
ISBN 0 691 06395 0

Carlos Baker has chosen to write about six modern poets in relation to Romanticism. Engagingly enough, his blurb declares that *The Echoing Green* will appeal to all students of poetry, "including veteran scholars". Well, this particular veteran finds that Professor Baker's enterprise leaves room for further reconsideration of technique, romanticism as well as modernism, particularly in the field of metre. It will take more expertise than is displayed here to show how some of the poems under discussion reached their final shape.

Most of *The Echoing Green* occupies itself with Yeats, Frost, Pound, Eliot, Stevens and Auden. One would think that sufficient to keep any critic reasonably busy. However, there are

also prefatory essays on Wordsworth, Coleridge, Byron, Shelley and Keats. In spite of the title of the book, Blake gets no separate treatment but weaves in and out of the various arguments as occasion serves.

The trouble is that Professor Baker never establishes a secure critical procedure. A relaxed persona comes across in his easily metaphorical prose, but this is not enough. If there is a preponderant mode, it is an unhelpful sort of impressionism. For example, Professor Baker claims a link between Byron's poem "Darkness" and the work of W. H. Auden. "Possibly this link, but of powerful exposure to an imagination of eschatological doom struck some deep chord in Auden's complex internal wiring." This is not very enlightening, especially when what is in question proves to be a passing reference to a piece of minor Byron in Auden's essay on *Don Juan*.

Don Juan itself, as we might expect, is recognized as a pertinent issue. We are provided with several open quotations from Auden's imitation, "Letter to Lord Byron". Among them is "I can't imagine what the Duke of Wellington / Would say about the music of Duke Ellington". Without being stuffy, though, a distinction needs to be made between this kind of poet laureate and the way in which a great poet learns from his predecessors. There is, after all, a qualitative difference between parody and creative

Attempts to justify art

German Aesthetic and Literary Criticism: Kant, Fichte, Schelling, Schopenhauer, Hegel
edited by David Simpson
Cambridge University Press, £25.00
and £7.95
ISBN 0 521 23630 4 and 28086 9

Of Kant it has been aptly said that reading his work recalls walking on the dunes outside his native city, Königsberg, where he spent all his life: the going is hard, but the wind is bracing. Apart from Schopenhauer who was born in Danzig, the other philosophers included in this volume - J. G. Fichte, F. W. J. Schelling and G. W. F. Hegel - came from the murkier climes

Highly wrought

Shelley's *Adonais*: a critical edition
by Anthony D. Kerr
Columbia University Press, \$32.50
ISBN 0 231 05466 1

Shelley had *Adonais* carefully printed at Pisa; so it is the least problematic textually of his poems. Mr Kerr's text is a good one, but adds little, if anything, to the work of other editors. The recording of the small variants in different editions is of little value.

In his notes and commentary and in his survey of critical opinion Mr Kerr makes a sensible selection of what has been discovered and written about the poem, but adds little of his own. He is so anxious to be courteous to all commentators that he is unwilling to state any firm conclusions, and leaves the reader to decide whether the poem is "finally one of despair . . . or one of triumph".

The valuable part of this volume is the appendix in which draft material for the poem is transcribed from four notebooks in the Bodleian. Mr Kerr's transcriptions are fuller and more complete than the ones he shows throughout, but would guess more accurate than previous ones. There are early drafts for nearly half the stanzas of the poem, for the preface and for stanzas which were never completed. The rejected fragments are concerned with the procession of mourners. If completed they would have made the passage about the mourners (stanzas 30-34) much longer, and would have slowed the progress of the poem without adding anything of much value. Shelley's tact in exclusion is seen also in his omission of some angry passages on critics intended for the preface and an overt personal reference to his son

ates of Saxony or Swabia and reading them can indeed be a stifling experience. But it was there that Romantic thought, which is Dr Simpson's main concern, flourished.

Unfortunately this interest in Romantic thought makes Dr Simpson look for Romantic ideas even in inappropriate places. Kant for instance. For although he admits that Immanuel Kant belongs to the Enlightenment he discovers Romantic notions in him and even mistakenly maintains that his philosophy of history is pessimistic. Of course, Kant was aware of the irrational side of human nature; but that does not make him a crypto-Romantic.

Simpson's approach makes him follow scores of German historians of philosophy who, prompted by cultural nationalism, had spoken of "Kant and his successors". But to claim Kant had started an "Idealist movement" in German philosophy is to perpetuate an error arising from cultural politics. For Schopenhauer and Schelling, Hegel and Schopenhauer trespassed into territory expressly declared out of bounds by Kant: all of them refused to accept

William. But it is the pages of the notebooks in which we see some of the best lines and stanzas emerging into the light that are the most fascinating. These are all early drafts, and we do not see the whole process from conception to birth. In some cases we have just a single page of jottings in which only faint hints of the final versions are to be seen; but for some stanzas we have two or three pages in which we can follow the poet groping towards his finest effects. For instance there are two pages of working towards stanza 40. On the first there are fifteen complete or fragmentary lines (for example, "He has escaped out of the pit of worms") before he finds his splendid first line, "He has outscored the shadow of our night." This was at first followed by the inferior:

And left in scorn panting behind his flight

Envy and calumny.
On the next page he starts with "He has outscored . . ." and does not take long to complete the three following lines. We then see him working from "From the hot contagion of the world's stain" through "the slow growth of the cold leprous stain," towards "From the contagion of the world's slow stain", though this is not yet reached.

All this helps us to appreciate Shelley's workmanship in producing this "highly wrought piece of art." It shows that his deprecation in *Adonais* of "Poetry of 'labour and study'" in comparison with inspiration is not justified by his own practice; that both inspiration and labour are needed.

The specialist will value most in this book the full transcriptions from the notebooks; the non-specialist may profit from finding in it a comprehensive compilation of facts and commentary.

Peter Butter

Peter Butter is Regius Professor of English Language and Literature at the University of Glasgow.

Raphaelites. There were, certainly, more robust aspects of Keats than the young Yeats saw, and a related inquiry might investigate the way in which these were apprehended by other poets, notably Hopkins and Owen.

Such an inquiry might suggest that we cannot satisfactorily account for any influence upon a major poet without looking at his near-contemporaries. Carlos Baker refers to the compulsive reading of Keats's *Endymion* Wallace Stevens embarked upon in his youth. But he gives no indication of the *fin de siècle* decadence that shrouded the young Stevens, in common with such acquaintances as Walter Arensberg and Donald Evans. However, it is that Stevens, unlike these others, courted the world of the unconscious with Romantic kitsch. The question then arises: how can we account for this? It is not, as it seems, that he was studying on his own, and it suggests how bewildering is the task Professor Baker has set himself. It would have been enough of an undertaking to have concentrated upon just one modern and related him back to his predecessors. As it is, like his namesake in Stevens's play, *Carlos among the Candids*, Professor Baker appears up to be manipulating too many luminaries at once.

Philip Hobbsbaum
Philip Hobbsbaum is reader in English at the University of Glasgow.

Hans Reiss
Hans Reiss is professor of German at the University of Bristol.

BOOKS

Machismo in uniform

Political Violence and the Rise of Nazism: the Storm Troopers in Eastern Germany
by Richard Bessel
Yale University Press, £18.00
ISBN 0 300 03171 8
Naxos 1914-1945: a documentary reader
edited by Jeremy Noakes and Geoffrey Pridham
University of Exeter, £2.95
ISBN 0 85989 174 7

The value of regional studies of the rise of Nazism has long been acknowledged; the importance of Nazi grassroots political violence - both before and after Hitler's appointment as Chancellor in January 1933 - in weakening the capacity of the social democratic and communist movements to resist the rise of Nazism was stressed by contemporaries. Yet relatively little attention has been devoted to the development of the principal instrument of Nazi political violence, the Storm Troopers (SA), and, until recently, little use has been made of material in regional archives to set the SA in its local social and economic context.

Richard Bessel's study of the evolution of Nazi political violence in Eastern Germany between the refounding of the Nazi party in 1925 (following the abortive Munich *putsch*) and the purge of the SA carried out by the Nazis regime in June 1934 goes a long way to filling this historiographical gap. Dr Bessel examines the development of the Nazi movement in Eastern Germany before 1933, the social composition of the SA, and its relationship with the Nazi party and with the *Reichswehr* before 1933. His main concern, however, is to explore the pattern of Nazi political violence before 1933 and the role of the SA in destroying coherent political opposition to the Nazis between January 1933 and August 1934 from a regional perspective.

He concludes with a study of the June 1934 purge of the SA in Eastern Germany: a political coup from which the SA was never to recover. Dr Bessel has found that although the SA recruited almost exclusively from young male Germans, the working class was under-represented in its ranks, and its leadership was overwhelmingly middle class. Particularly interesting, is his analysis of the

wing politics in the pre-war years, in particular through its encouragement of racist antisemitism. He also shows how it provided the ideological basis for the consolidation of the right between 1913 and 1914. Thanks to the activities of the Pan-German League and to its own past encouragement of nationalist fervour for political purposes, the German Government found its room for diplomatic manoeuvre severely restricted by a "national opposition" composed of a substantial section of the German upper and middle classes. Finally, the author shows that the Pan-Germans did develop a more or less coherent ideology and that this provided the basis for Nazi ideology, even though the Nazi movement developed a very different form of organization and political style more appropriate to the postwar period.

Professor Chickering, however, goes beyond the conventional questions of ideology and political influence. He asks why people joined the organization, and what did they get out of it? He is rightly sceptical of an approach which sees the membership of the league simply as "manipulated" by the establishment, or which sees the league as merely a tool of heavy industry. In an attempt to break away from what he calls the "common-sense, rationalistic, interest psychology" approach to the dynamics of the organization, he uses concepts drawn from social psychology and cultural anthropology to try to understand the mentality of the Pan-Germans. He elucidates the emotional prejudices and anxiety which coloured their political views through a subtle analysis of the symbols and images in

We Men who feel Most German: a cultural study of the Pan-German League 1886-1914
by Roger Chickering
Allen & Unwin, £20.00
ISBN 0 04 943030 0

In the past few years historians of Wilhelmian Germany have drawn attention to a fundamental change in German politics which began during the 1890s and which, in many respects, laid the foundations for the postwar period. It occurred through the political mobilization of social groups hitherto largely excluded from the political process. Among the pressure groups responsible for this development were the patriotic societies which sprang up during this decade, of which the Pan-German League, albeit the smallest, became the most notorious.

The role of the Pan-German League in German society and politics, and its influence, has been a controversial issue. It is the purpose of this book to try to analyze its contribution to the rise of Nazism, historians have debated its impact on government policy, and the extent of its popular support. Professor Chickering's new book deals thoroughly with these questions.

He demonstrates how the Pan-German League played a crucial role in transforming the atmosphere of right-

sources of tension (usually finance-related) between the Nazi party and its paramilitary wing in Eastern Germany (which occasionally threatened to break loose of party control) before 1933 and of the clearly defined limits within which Nazi paramilitary violence operated. Only occasionally did the SA challenge the power of the Weimar state directly, and regional and local leaders who abandoned Hitler's "legal" path to power were frequently led to their fate by the party leadership.

The real significance and effectiveness of the SA as a political instrument in the service of National Socialism lay in the fact that by directing its political violence mainly against the organized left - breaking up meetings, disrupting churches, preventing the distribution of socialist and communist propaganda - the SA (and the movement it served) could portray itself simultaneously as both radical and respectable, restoring "order" through extralegal attacks on the labour movement. The SA as an instrument for the restoration of order through political violence played an important part in persuading large sections of the increasingly terror-struck German middle classes that National Socialism was the only effective bulwark against Bolshevik revolution. As Dr Bessel states:

In a very real sense the storm troopers themselves were Nazi propaganda, as well as its distributors . . . generating an image of a young, virile, uncompromising political movement.

He emphasizes that the brutal role of the SA in the Nazi seizure of power in spring and summer 1933 must be seen in parallel with the more cautious "legal" offensive against opponents launched by the Nazi regime.

The SA reflected commonly accepted young male social values ("machismo" in uniform), values which found similar expression in the street violence of the (also youthful) Communist Party. Yet Dr Bessel does not really tackle the question of why members of the SA chose to express their machismo by attaching themselves to this particular organization: one would have welcomed his comments on the recent attempt by Klaus Theweleit to analyse the psychological roots of the "white terror".

A long-overdue reprint of the first part of Jeremy Noakes and Geoffrey Pridham's invaluable document collection on National Socialism is now available. The combination of judiciously chosen documents and balanced and well-informed commentary make this one of the best starting points in English for students seeking to understand the rise of Nazism.

Stephen Salter

Dr Salter is researching into German history 1918-1945.

A basis for Nazism

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Elusive quarry

Ernst Kaltenbrunner: Ideological soldier of the Third Reich
by Peter R. Black
Princeton University Press, £30.10
ISBN 0 691 05397 9

What does it take to make an evil man? Ernst Kaltenbrunner, who began as a lawyer in Linz, and finished his career as the head of the Third Reich's Main Office for Security (RSHA), could certainly look the part, with his huge, hulking form, massive head, scarred face and the sort of teeth that made even Himmler advise him urgently to see a dentist.

Peter Black, a historian from the Office of Special Investigations in the US Department of Justice, first shows Kaltenbrunner in his early years of cosy provincial security in Austria and then traces his development against the background of Austrian pan-Germanism and student societies. After a spell in the Austrian Heimwehr during his law practice, Kaltenbrunner eventually joined the Austrian National Socialists in 1930, becoming chief of the SS in Upper and Lower Austria

before finally moving to the RSHA in 1943 as the successor to Reinhard Heydrich after the latter's assassination. Thenceforward through his direction of the Gestapo and criminal police as well as the security service - Kaltenbrunner's life became part of the sickening record of atrocity in the Third Reich, which Black graphically describes under the rubric, "implementing Nazi War policy".

What sort of evidence would "explain" such a figure? Black rejects ideas of Kaltenbrunner as either a demonic cold-blooded killer or an "ordinary" man obeying orders. Rather he purports to show the impact of specific political, intellectual and social influences on Kaltenbrunner to reconstruct the making of an ideological soldier. This results in large, detailed chunks on intellectual and ideological currents in turn-of-the-century Austria, as well as long sections on social and political developments in Austria between the two World Wars.

Against this often over-detailed "context" Kaltenbrunner remains, however, a persistently elusive quarry and Black is often reduced to drawing inferences about Kaltenbrunner's character development. Kaltenbrunner tends to surface here and there from the packed narrative, bored out of his mind, aimless, occasionally pursuing women with some success in

spite of, or because of, his physical looks. There seems anything but a consistent line of development. The book becomes more successful when Kaltenbrunner eventually gets the call from Himmler to come to Berlin, leaving provincial boredom behind. Then it is easier for Black to demonstrate Kaltenbrunner's enthusiastic prosecution of National Socialist ideology. This he does skilfully, also taking care to bring out the RSHA's part in the ceaseless institutional rivalry which characterized the Nazi regime.

Much new detail on Kaltenbrunner emerges from the array of private papers Black has used, but in the last resort the book confirms that the amassing of personal data on National Socialist leaders will never in itself provide a clearer explanation for their actions. This is at least one reason for the thrust of current historical research on the Third Reich towards the study of its structures. In the end, for all his zealous accumulation of information on Kaltenbrunner's private life, Black is driven to make huge generalizations about the German national consciousness.

John Hiden

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Failure of activism

The Resistance in Austria, 1938-1945
by Radomir V. Lusa
University of Minnesota Press, \$35.00
ISBN 0 8166 1226 9

For many years Austrian historians, eager to prove their country's anti-Nazi record, have been publishing books and papers on the Austrian Resistance movement, which has also been documented in every facet by a special archive, situated in the old town hall of Vienna. So Professor Lusa's claim in the preface that the anti-Nazi underground has not been sufficiently studied is correct only to the extent that little on it has appeared in English. Thus his detailed survey with its large statistical apparatus is welcome.

The book distinguishes two main streams of the Austrian Resistance: the traditionalist conservatives - Catholics, monarchists, soldiers and ex-soldiers - and the Communists who constituted "the major clandestine force"; indeed, they formed 45 per cent of active resisters whose names have been recorded. The large majority of the Communists were former Socialists who accepted Communist directives because their own leaders had emigrated or become more or less passive. Thus the Communists with their slogan of a Free and Independent Austria could move successfully into a political vacuum, which exaggerated their real strength.

All the opposition groups suffered from ruthlessness and well organized persecution. Time and again the Gestapo infiltrated the underground cells; sometimes it even ran opposition networks. Soviet and other agents dropped by parachute were only too often

turned round and used for Nazi purposes, and more than 2,700 underground activists were sent to their death, either by Nazi courts or in concentration camps. The Gestapo's work was facilitated by the amateurish and bungling methods used, at least in the early stages, as well as by the Communist insistence on "mass propaganda" - an obvious impossibility in the conditions of the Third Reich, with a large section of the population supporting the Nazis.

Were the terrible sacrifices worth the effort? What did the Austrian Resistance achieve? Even according to Lusa's glowing account not very much. There was some guerrilla activity in the mountains of the south, in collaboration with the Yugoslav Partisans, but the local population remained hostile to the guerrillas. There was some sabotage and "administrative sabotage", such as keeping soldiers at home rather than sending them to the front. Some help was rendered to agents sent by the American Office of Strategic Services and to German deserters.

Towards the end, "an atmosphere of political insecurity" was created, but this would have occurred in any case as the war was clearly lost. In April 1945, even the carefully worked out plans for the liberation of Vienna in cooperation with the Red Army miscarried because of last-minute arrests. But Innsbruck was liberated a day before the Americans reached it. Elsewhere the destruction of bridges, factories and public utilities was prevented. These were rather small gains: the major gain probably was the reemergence of an independent Austria - cynics might say this would have happened even if there had been no Austrian Resistance.

Lusa has done his best with a rather intractable subject. Certain sections of the book read like catalogues of opposition groups and their members; and the figures given for the leaflets distributed by them cannot be proven. That Cardinal Innitzer gave his blessing to a relief action for Jews converted to Catholicism and contributed a modest monthly sum to it can hardly be classified as an act of resistance.

What did the Cardinal do for the non-baptized Jews? He had, after all, received Hitler in Vienna and ordered the ringing of the church bells to welcome him. By 1945 however, the mass enthusiasm of 1938 for the Anschluss had faded, and the Austrians received the Americans (if not the Russians) with the same enthusiasm.

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F. L. Carsten

Professor Carsten's book "Britain and the Weimar Republic - the British Documents" will be published shortly.

German diplomacy

"Strategic Aspects of the Anglo-German Naval Race" and "Fisher and Tirpitz Compared" are among the subjects covered in Paul Kennedy's *Strategy and Diplomacy 1870-1945*: eight studies. First published last year, the book is now available as a Fontana paperback, priced £3.95.

Jeremy Noakes

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Field Marshal Erwin Rommel, a picture from H. P. Willmott's *June 1944* (Blandford Press, £8.95).

their literature and by a careful study of their social roles based on a statistical breakdown of the social status, economic functions, and educational background of the local leadership. He also braves the tedium of wading through reports of the meetings and events of the local chapters to provide an empathetic study of what activity in the Pan-German League actually meant to its members, who acted on the basis of psychological sustenance.

His conclusions, stated somewhat crudely, are that the Pan-Germans came predominantly from the *Bildungsbürger* class, the university-educated middle class, but from more or less marginal sections of it - grammar school teachers rather than university professors (one in five of the membership), civil servants from the technical branches rather than from the more prestigious general branch, first generation graduates. These teachers and officials saw themselves as the guardians of German *Kultur* and authority, and their very marginality contributed to the extent to which their whole self-esteem became identified with this role. Their definition of *Kultur* combined an intense ethnic

BOOKS

Great statesmen

Richelieu and Olivares
by J. H. Elliott
Cambridge University Press, £17.50
and £5.95
ISBN 0 521 26205 4 and 27857 0

In these days of sociological model-building and "total" history it may seem a little old-fashioned to write about great men. It should be said at once that this study, based on the Trevelyan lectures given at Cambridge last year, is not simply a book about two great statesmen, and it is certainly not old-fashioned. Indeed, traditional biographical approaches would not have lent themselves to the type of comparative analysis employed by Professor Elliott to illuminate from many angles the world of seventeenth-century politics. Maybe this partly explains why, despite the virtually coterminous lives of Cardinal Richelieu (1585-1642) and the Count-Duke Olivares (1587-1645) and the fact that they rose almost simultaneously to supreme office in France and Spain, such a treatment has not materialized sooner.

The neglect is also, Elliott begins by noting, a consequence of contrasting fortunes of the two leaders. When Richelieu died, physically worn out by

the strains of office, he was none the less in full command of the domestic scene and the power and prestige of France had risen to unprecedented heights. Olivares, on the other hand, was disgraced and banished from Madrid within a few months of his rival's death, universally blamed for Spain's Spanish prosperity and the almost continuous series of setbacks suffered by once invincible forces at the hands of the French and their allies. He has, says Elliott, been rejected by Spanish historians ever since as "little more than a national disaster, worthy at best of summary dismissal". In part, Elliott's own study is an attempt to argue that the unequal treatment of the two statesmen by historians is misguided, even unfair, and in part an attempt to explain it by looking at the root causes of "success" and "failure".

Psychological explanations are quickly and effectively dismissed. Indeed, what is striking is the extent to which the contrasting physiognomies of the two men belied very similar temperaments. Both, not surprisingly, in view of the stress they imposed on their mental and physical resources, were hypochondriacs; both were in some ways regarded by some of their colleagues as displaying signs of instability; and they shared an interest in architectural planning as well as unfulfilled aspirations to military command. In part, it is suggested, these interests flowed from the overriding preoccupation of both ministers to impose order on a disorderly and degenerate world. Their conception of order derived from a typically post-Renaissance fusion of classical rationalism with Christian ethics, incorporating a Tacitean approach to the art of statecraft and a pessimistic view

of the human condition, imbued with a deep sense of original sin. Certainly their rationalist attitude to the conduct of politics did not preclude a highly providential view of human affairs. As Olivares suffered misfortune after misfortune, his sense of stoic resignation deepened. Richelieu, by contrast, was able to see himself as the harbinger of a new Augustan age which would replicate the "heroic virtue of Rome at the height of its grandeur". Notwithstanding such divergences, Elliott manages in convincing and elegant style to show that not only did the two leaders inhabit the same mental universe but that they were fully men of their own age whose modernity should not be emphasized.

This was further exemplified by their commitment, at least at the outset of their public careers, to the refashioning of their respective realms, involving grandiose schemes of fiscal, political and social rejuvenation which they hoped would restore the health of the traditional body politic. Both men eventually concluded - in Richelieu's case, more explicitly and with less reluctance - that reform must give way to the paramount need to achieve military and diplomatic supremacy in Europe. It becomes very clear that they both felt that "authority" at home was greatly dependent on the pursuit of "reputation" abroad. In a sense they were right. Success in Europe certainly assisted the cardinal in combating the many critics of his unholy alliance with Protestant powers and strengthened his hand in dealing with the conspiracies directed against him (although Elliott probably overstates the gravity of challenges to his rule). Conversely, Olivares became increasingly vulnerable to the discon-

cent provoked by the burdens required to sustain largely unsuccessful foreign ventures.

Given Professor Elliott's broadly convincing efforts to show the similarities in objectives of the two statesmen, it is then incumbent on him to offer some other explanations for their respective fates. His suggestions, although not developed at length, are full of interest. Spain's well-established administrative institutions are, for instance, presented as an impediment to the mobilization of resources, whereas the comparatively unformed French bureaucracy allowed for greater flexibility. Indeed, French institutions could develop in response to the demands of war. Secondly, Elliott maintains that not only was the French economy in better shape but that provincial resistance to the exigencies of the crown was less effective. Finally, he notes that the impetus of the Counter-Reformation in France had not yet ebbed, giving a dimension to the consolidation of royal authority absent in Spain. Further exploration of this point might have been fruitful, for it would have shown that while Richelieu brought the campaigns against the Huguenots to a triumphant conclusion he was essentially the beneficiary of policies developed before his assumption of power.

It may well be that some of Professor Elliott's other ideas will require similar extension or qualification, but there can be no doubt that he has produced a most stimulating and useful book. The task of placing these great ministers in their full historical context. In the process of developing his argument he also makes a number of observations about the mechanisms of power and patronage, on the cultural formation

of the ruling classes, on economic policy and much else that will be helpful to all students of the period.

Lastly, it is certain that the author's reservations about the nature of Richelieu's success will strike a chord with anyone who is familiar with the literature of the Fronde. Elliott's argument, erupted within a few years of his death, together with Cardinal Mazarin's successor, Richelieu was widely regarded as a tyrant and self-seeker who had disturbed ancient forms of government and justice, sacrificing the welfare of the country to an ignominious foreign cause. Louis XIV's subsequent decision to rule without a first minister was in tune with a significant section of public opinion; only the passing of time allowed resentment to turn to acclaim so enabling the cardinal to achieve one of his dearest ambitions: the recognition of posterity. Professor Elliott should be thanked for placing him in a perspective which will help to redress the balance.

David Parker

Dr Parker is senior lecturer in history at the University of Leeds.

Leicester University Press has published an English edition of *Le Manière de Négocier avec les Souverains* (The Art of Diplomacy) by the sixteenth-century writer and diplomat Francois de Callieres. Edited by H. A. Keesen-Soper and Karl W. Schmid, the book includes the text of the classic work, together with essays on the writer and the diplomatic context in which he worked. It costs £15.50.

A public example

The Damians Affair and the Unravelling of the Ancien Regime, 1750-1770
by Dale K. Van Kley
Princeton University Press, £32.30
ISBN 0 691 05402 9

On January 5, 1757, Robert François Damians, a 42-year-old unemployed, undomiciled domestic servant, walked out of a crowd in the courtyard of the palace of Versailles and stabbed Louis XV. It is not certain that he intended to kill the king, and he made no attempt to escape afterwards. But just over 14 months later he suffered the same fate as the assassin of Henry IV: after being pinched all over with red-hot irons, his limbs were broken one by one and four horses attempted to tear him apart. When he was dead, his remains were publicly burned.

Historians have long recognized that this grisly spectacle, which thousands watched, was a sort of turning point; it disgusted thinking people with the barbarities of the unreformed law, and created a ready audience for the judicial crusades of Voltaire during the next decade. Dale Van Kley, however, thinks it was a turning point in more senses than this. For Damians struck his blow at the height of a bitter religious and constitutional crisis which raised issues touching the very foundations of the established order.

And it became clear, as the judicial authorities tortured and interrogated him to find out whether he had acted alone or was the instrument of a conspiracy, that Damians had picked up many of his views from employers discussing the conflicts of the day.

Some, indeed, had been participants, as magistrates in the Parlement of Paris. The Parlement had made itself the protector of Jansenists against the attempts of the episcopal hierarchy to stifle dissent by denying the last rites to dying persons unable to produce certificates of orthodoxy from their confessors. The Government's attempts to steer an even course through what Van Kley (on whom eighteenth-century elegance of expression has not rubbed off) calls a jurisdictional and corporate struggle, only resulted in 1756 in the resignation of most of the Parlement's magistrates. Van Kley's account of the political and religious mess, despite his disclaimers, the authorities made a thorough search for accomplices, and this involved a clampdown on all reported cases of subversive talk. Van Kley analyses these at length, and finds in them evidence of declining respect for, and "desacralisation" of, the monarchy. And this came at a time when the debate between Jansenists and their episcopal persecutors was raising issues in the relationship between church and state that were to surface with disastrous results in the 1790s. This is what he means by saying that the *ancien regime* began to "unravel" about the time of Damians.

This argument raises points worth pondering. We have certainly heard too much about philosophy sapping faith in the old order, and not enough about the contribution of priests and purblind lawyers. This is Van Kley's second essay in redressing that balance. But whereas his first book, on the role of Jansenism in the explosion of the Jesuits from France in the 1760s, made convincing reading throughout, the new one fails to clinch its case. Really it is two books, or maybe three. First comes an exemplary account of analysis of Damians, what he did, and why. Then there is a lengthy dissection of the constitutional crises of the early 1750s, and the ideas of those involved, in which Damians hardly figures at all. Of course, the two coincided. Poor half-mad Damians was certainly influenced by what his masters said, and his personal intervention certainly affected what they later did. But the two locked together uniquely to begin the decline of the *ancien regime* is another matter. And whether the popular grumblings - calling the king a bugger, and so on - that the police began to look for and notice in 1757 were anything new, or even special, seems very uncertain indeed. King have always been buggers, and suspect their subjects have always said so. The police only start to listen when one of them tries to do something about it.

William Doyle

William Doyle is professor of modern history at the University of Nottingham.



Alfred Dreyfus

political elite had to share its influence with grassroots organizations, and the popularity of the nuclear struggle allowed radicalism to compete with socialism as an organized democratic force.

But the radicals' creative phase was brief, and even their updated version of the Republican ideal proved inadequate in a France which was ceasing to be predominantly rural. By 1914 the social equilibrium on which the success of the Republic had rested was passing away - yet France's response to the Great War showed how solidly the democratic foundations had been laid. To understand why the Third Republic lasted longer than any regime since 1789, and to recapture the atmosphere of its hopeful years, one should read Mayeur and Reberoux. Their book is also a clear and comprehensive guide to the course of events; but it will hardly reach the student market for which it was designed until the publishers bring out a paperback edition.

Robert Anderson

Dr Anderson is senior lecturer in history at the University of Edinburgh.

Support from the masses

The Third Republic from its Origins to the Great War, 1871-1914
by Jean-Marie Mayeur and Madeleine Reberoux
translated by J. R. Foster
Cambridge University Press, £32.50
ISBN 0 521 24931 7

As Jean-Marie Mayeur remarks in the preface to this study, the Third Republic seems out of sympathy with "the dominant currents of our time". Its early years are remembered as a series of crises and scandals - Boulanger, Panama, Dreyfus - and its successes are overshadowed by the troubles of the 1930s and the ignominious collapse of 1940. The old-fashioned liberalism of the Republic's founders, their angelical obsessions, their fervent but narrowly nationalistic patriotism, even

their faith in science and progress, belong to a world which has become remote.

It is one of the many merits of this volume in the "Cambridge History of Modern France" that the Third Republic is assessed and made comprehensible in terms of its own values and priorities. The book combines two volumes, both of outstanding quality. In the French series from which the Cambridge History is translated - and the translation, by the late J. R. Foster, is excellent. The combination works well, for Mayeur and Reberoux have a similar approach and a common interest in the interaction of politics and ideas.

Mayeur's is the more traditional part, interweaving chronological sections with valuable thematic chapters on socio-economic history and on "beliefs and cultures". The latter dealing particularly well with religion and education. Reberoux, who takes over in 1898, presents a more intricately argued account which offers an important and original reinterpretation of the period. She manages to say new things even about the Dreyfus affair, but only welcomes most of all her pioneering treatment of the still

obscure period between 1905 and 1914, when economic and cultural vitality accompanied political confusion, and when the interplay of party politics, business interests, and colonial and foreign tensions foreshadowed the postwar years. One theme is common to the two authors. The Third Republic carried out no social revolution, and stood for the bourgeois interests of property and order, yet its social impact was profound and essentially progressive. Its democratic political achievements were important in themselves, and they succeeded in mobilizing positive support among the masses. For the lower ranks of the middle class, and for many of the peasantry and working class as well, the Republic's optimistic creed corresponded to a sense of collective progress, and its social reforms, especially in education, gave new scope for self-improvement and social mobility. As in Britain, this was an age when popular interest in politics, led by grandiose oratory and by the new mass press, reached a height not often equalled since. Reberoux argues that the Dreyfus affair led to a new stage of popular politicization. In the "Republic of the Radicals" the

BOOKS

Without work

Full Employment: the elusive goal
by Derek H. Aldcroft
Harvester Press, £15.95 and £4.95
ISBN 0 7108 0293 5 and 0298 6

Growing numbers of people in Britain are now faced by the prospect of long-term inability to find work. School-leavers never enter employment; industrial workers are declared redundant in mid-career with permanent loss of income, hope and dignity. This growing problem has emerged at a alarming pace in little more than a decade.

From the end of the Second World War through the buoyant years of the 1950s and into the late 1960s, unemployment averaged no more than 350,000. This was less than 2 per cent of the labour force; and almost all affected were on the dole for only a very short period while moving from one job to another. So the mass unemployment which had scarred the lives of millions in the years between the wars was increasingly seen as a matter of history. The dragon had been slain, there was no threat to present generations. The great heroes were John Maynard Keynes and William Beveridge. They it was who had foretold what was to be done and how to do it. As often in such tales the praise rendered to those who had vanquished the dragon greatly exaggerated their true strength, though this was not properly perceived by the people at the time. But even as these triumphs were being celebrated, and the people were beginning to take their security for granted, the old enemy was preparing to attack again.

By the mid-1960s, as we now know, the total number of jobs available in Britain had reached its postwar ceiling. It then started to fall dramatically. New jobs were created in some sectors, notably in banking and finance, and in business, professional and scientific services. But this was sufficient to compensate for only about half of the jobs lost in manufacturing, mining, transport and the other sectors which have been desperately shedding workers. The proportion of those who wanted to work but were unable to do so first exceeded 3 per cent in 1972. It

Against this background there is clearly a great need for serious analysis of the problems and for evaluation of possible remedies. Derek Aldcroft brings to the task the perspectives of an economic historian who has written extensively on the interwar period, and he begins with an examination of the changes in employment and unemployment in the 1930s as compared with the 1950s and then looks at some of the underlying causes arising from

The family business

Unquoted Companies: their contribution to the United Kingdom economy
by Donald A. Hay and Derek J. Morris
Macmillan, £25.00
ISBN 0 333 36335 3

An unquoted company is one whose equity shares are not listed by a stock exchange. The vast majority of British companies are unquoted. Most of the million or more such companies are small, private concerns, little different from the sole proprietorships and partnerships from which many of them have evolved, but some of them are large, powerful firms of considerable significance both to the sectors within which they operate and to the economy as a whole.

Despite the obvious importance of such companies, their behaviour and performance have been virtually ignored. The principal reason for this neglect is that until 1967 unquoted companies did not have to file accounts with the Companies Commission for the purpose of public information. No data base existed to permit analysis by economists; comparisons with their quoted counterparts were all but impossible. Although the Bolton Committee, which reported in 1971 identified numerous characteristics of small companies (most of which were likely to be unquoted), it could not be assumed that such features were typical of all unquoted companies. For the size of many of these far exceeded the arbitrary limits of the Bolton Committee's formal terms of reference.

The purpose of this important book is to remedy this gap in our knowledge.

passed 5 per cent as recently as 1976 and reached 10 per cent in 1981. It is now about 13 per cent and is held there only by a combination of short-term make-work schemes and short-sighted manipulation of the figures. Perhaps the most distressing of all the consequences of this process is the increase in the number of people who have been without work for more than a year. Ten years ago there were only about 150,000 in this position; today the number is close to one million.

Yet at precisely the time when the need to take action was becoming most urgent the traditional full employment policies of the early postwar period were being most fiercely assailed. Inspired by Milton Friedman the monetarists mounted a vigorous assault on the Keynesian doctrine that fiscal policy could be used to create employment. They argued that any such benefits would be at best temporary, and that the only way to achieve lasting expansion was to eliminate inflation. This was to be done by bringing the growth of the money supply under firm control. Once markets saw this happening their expectations of the rate of increase of prices and wages would be revised downwards. This would gradually lead into an era of stable prices and rising employment.

In the mid-1970s the Labour Government accepted these views, albeit with much hesitation and a great deal of persuasion from the International Monetary Fund. In its 1975 budget Denis Healey specifically repudiated the traditional practice by increasing taxes in a year when unemployment was already high and expected to rise. When the Conservatives took power at the end of the decade all remaining doubts were swept aside. Monetarism was triumphant. That was five years ago and the new orthodoxy is now well entrenched. The struggle against inflation has been largely successful, even if the means by which this has been achieved owe more to a strong petrodollar and high interest rates and their adverse effects on exports and employment - than to any revision of expectations in the light of controls on M1, M3 or any other measures of the money supply.

Against this background there is clearly a great need for serious analysis of the problems and for evaluation of possible remedies. Derek Aldcroft brings to the task the perspectives of an economic historian who has written extensively on the interwar period, and he begins with an examination of the changes in employment and unemployment in the 1930s as compared with the 1950s and then looks at some of the underlying causes arising from

the economic conditions in the two periods. The four remaining chapters then develop his central theme: fiscal policy to stimulate demand has not worked in the past and will not work in the future. This is because of a set of four constraints: the hostile reaction to such policies of financial markets, their adverse consequences for the balance of payments, the stimulus they give to wage and price inflation, and the deep-rooted structural and capacity weaknesses of the British economy.

The arguments are set out lucidly, and draw on a wide range of secondary sources; and there are some interesting sections, for example, the critique of postwar regional policy. But overall it is difficult to see for whom this relatively slight work is intended. Economists already familiar with the issues from the debates of the 1970s will find little that is novel or stimulating. Students and the general public will find it unsatisfactory in other respects. It reads like a cross between an elementary textbook and a polemic pamphlet, but unfortunately it takes the least desirable features from each of these two modes of writing. It has

the rather dull, flat style, the lack of original research and the tendency to over-simplification which one associates with an introductory textbook; but it combines this with a one-sided and partisan approach more suited to a polemical pamphlet.

The level of analysis is never high and is occasionally inadequate. For example, Aldcroft argues on page 86 that a reflationary macroeconomic policy would necessarily be directed towards "sectors which require relatively limited amounts of new capital but which generate a good deal of employment" and then criticizes this on the grounds that "it would induce a shift of resources into low-productivity, low-technology sectors, which is the opposite of what is required". At a time of high unemployment it is surely very odd to object to a reflationary policy on the grounds that it will absorb labour. Why does it matter that it will be in low productivity sectors (housebuilding and other construction, for example) if there is an abundance of unskilled labour unable to find work in high-tech industries and

if "relatively little capital" is required? Throughout the book the eagerness to make a case against fiscal policy is allowed to override the need for a balanced assessment. Thus, for example, in his discussion of the possible effects of a public works programme in the 1930s, Aldcroft estimates that the variant of Lloyd George's programme devised by J. M. Keynes and Arthur Henderson would have reduced unemployment by 359,000 after five years. This was well over 20 per cent of those out of work at the time the scheme was proposed, but Aldcroft sweeps it away dismissively as "very small beer indeed" (page 40).

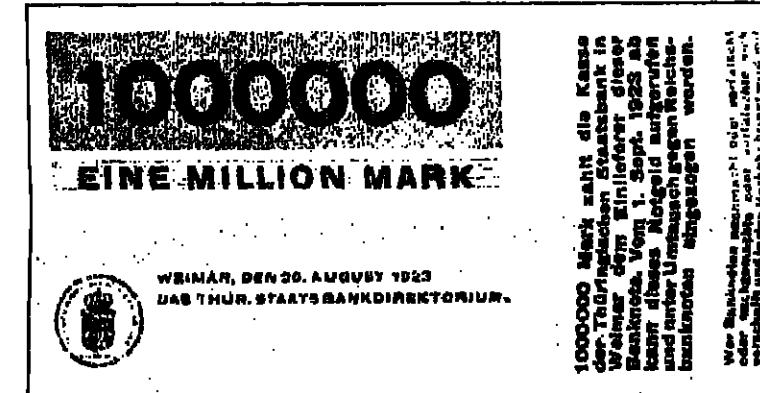
If this was meant to be a polemic it should have been written with more fire and passion; if it was intended for students it should have been written with more balance and objectivity.

C. H. Feinstein

C. H. Feinstein is professor of economic and social history at the University of York.



Herbert Bayer, and (below) a bank note he designed, which was issued by the State Bank of Thuringia. Taken from *Bauhaus* by Frank Whitford (Thames and Hudson, £3.95).



process which pushes the market sterling price of bullion over its mint price, the consequent pressures to melt down coins and so on.

Many of the other chapters, however, fail to escape the problems posed by the confinements of space. The treatment is very dense with a congestion of authors and issues and with the reader sometimes learning very little of the technical features of the analysis. D. P. O'Brien's chapter on monetary economics, a subject with a long history, covers money definitions, the supply and demand for money, monetary control, the rate of interest, transmission mechanisms; a vast area of writing so that, for example, the relationship between money and natural rates of interest gets only three pages.

R. F. Hébert and R. F. Ekelund put much emphasis, within welfare economics, on the pre-war twentieth-century contributions which they feel have been underestimated. There is a particularly good section on consumer surplus and its applications where they explain Jykes Dupont's proposition that the welfare loss from a sales tax is, when the elasticity of demand is one, proportional to the square of the tax. This might have been followed through by discussion of F. P. Ramsey and the subsequent optimal tax literature. Instead, to the end of a greater coverage of welfare economics, we get a terse statement on optimal taxes followed by a very congested treatment of Pareto optimality, public goods, market failure and the public choice literature. John Creedy's chapter on public finance has a good section on the personal income tax including a clear exposition of the early concern with whether all sources of income (such as property income and the "less permanent" employment income) should be treated equally. But the chapter also includes indirect taxation as well as some expenditure theory all of which is inevitably compressed.

A. S. Skinner and M. C. MacCannan cover oligopoly and the theory of the firm. Their broad thrust is that modern research can be shown to have strong links with Alfred Marshall's loose set of classifications of industrial structure though following a path only opened up by the revolution of the 1930s. Inevitably this is a more modern literature than is found in many of the other chapters but again, with a coverage of entry barriers, collusion, contestable markets as well as Edward Chamberlain and Joan Robinson, the scope for sustained analysis is limited. The discussion of Chamberlain does provide a familiar entry for the student but follows, for example, a very terse summary of Mrs Robinson's imperfect competition including a one-sentence allusion to her incorporation of firms' reactions into the average revenue curve.

At the same time the book remains very useful for reference purposes. Each chapter provides indeed a comprehensive coverage of its topic, with very good bibliographies. The chapter by A. C. Darnell on econometrics and econometrics fits readily into that framework since there is no attempt to develop any technical analysis. But for much of the rest one would have preferred a bigger book or narrower coverage.

Robert Millward

Robert Millward is professor of economics at the University of Salford.

How ideas evolve

Economic Analysis in Historical Perspective
edited by J. Creedy and D. P. O'Brien
Butterworth, £25.00
ISBN 0 408 11430 4

The target readership of this book is final-year undergraduates, postgraduates and professional economists. It is not an easy task to persuade even that restricted group to read about the contributions of previous generations of economists. The editors have sought to move away from treatments which focus on authors, schools of thought and revolutions towards an approach where specialist contributors trace the evolution of the main current ideas on specified subjects. The challenge of such an approach is heightened if space is limited to 200 or so pages; here the editors have responded by restricting the range of topics and by assuming that the reader is already well briefed on modern analysis of each topic. J. S. Chipman pulls it off very well in his chapter on monetary aspects of balance of payments adjustments. An increase in paper money will have effects on spending which may, through its effects on trade, have a depressing effect on the economy's exchange rate. To the extent that some form of gold standard is in force, an outflow of gold occurs with possibly a self-correcting mechanism set in train. Chipman looks at the way this process was analysed by John Locke, David Hume and others up to David Ricardo. The reader constantly has a specific theoretical issue at the front of his mind. Chipman does not get sidetracked so that the reader actually goes through analyses of the goldpoints, the

Peter Payne

Peter Payne is professor of economic history at the University of Aberdeen.

10

Universities continued

University of Dundee Department of Civil Engineering

There is a vacancy for a **LECTURER IN CIVIL ENGINEERING** in the above Department where the successful candidate will be responsible for the teaching of structural engineering and will also be associated with the design of structures. The successful candidate will be required to have a degree in civil engineering and a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

Salary scale £7,190 - £11,568 p.a. (under review) with initial placement dependent on experience. Applications should be sent to the Deputy Registrar, University of Dundee, Dundee, DD1 1HQ. Closing date 15th August 1984.

Fellowships

The University of Aston in Birmingham Department of Pharmaceutical Sciences

POSTDOCTORAL RESEARCH FELLOWSHIP - MEMBRANE PHARMACOLOGY

Applications are invited for the above post to work within the CRC Cell Membrane Research Group to investigate the effects of various tumour agents on cell membrane function, particularly changes in ion flux and lipid metabolism. Research group members are scientists who work in a multidisciplinary way in the study of membrane transport and the development of novel drugs. New laboratory space and equipment are available at the University. The post was opened in Spring 1984.

Candidates should have, or expect to obtain, a Ph.D. in cell membrane physiology or pharmacology or physiology and also have experience in the field of membrane biophysics. The appointment will be for a period of one year and the salary scale will be £7,190 - £11,568 p.a. (under review).

Application forms and details of the above post may be obtained from the Deputy Registrar, University of Aston, Birmingham, B4 7ET. Closing date 15th August 1984.

Polytechnics

HEAD OF DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING (GRADE VI)

Salary scale: £16,832 - £19,327 per annum (pay award pending)

Applications are invited for the above post, which becomes vacant on 1st January 1985. The Polytechnic of Wales is playing a leading regional and national role in the provision of education, research and services, and the role in this provision, particularly in view of the recent establishment of many micro-electronics industries in South East Wales, offers an extended M.Eng. course, and enhanced B.Eng. (Hons) and several MSc-sponsored courses. Links with local high-tech industry are particularly strong, and the department currently has four SERCON 'Teaching Company' programmes. The successful applicant will need to lead a team of dedicated staff in order to continue the department's recent development, to ensure that the newly validated M.Eng. and B.Eng. (Hons) will be of the highest quality, and to ensure that the department is fully equipped to meet the needs of the industry. The successful applicant will need to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, The Polytechnic of Wales, Pontypridd, Mid Glamorgan CF37 1DL. Tel: (0449) 408139 ext. 2021. Closing date: 15th August 1984.

The Polytechnic of Wales

University of Warwick

RESEARCH FELLOWSHIP IN ENGINEERING

Applications are invited for a two-year postdoctoral SERC Research Fellowship in the Department of Engineering. The objective of this project is to investigate the identification of nonlinear systems. The objective of this project is to investigate the identification of nonlinear systems. The objective of this project is to investigate the identification of nonlinear systems. The objective of this project is to investigate the identification of nonlinear systems. The objective of this project is to investigate the identification of nonlinear systems.

Salary will be on the Range LA scale £7,190 - £11,568 p.a. to a maximum of £8,080 p.a. Applications should be sent to the Deputy Registrar, University of Warwick, Coventry, CV4 7AL. Closing date 15th August 1984.

Applications (6 copies) containing full curriculum vitae and the names of 3 referees should be sent to the Deputy Registrar, University of Warwick, Coventry, CV4 7AL. Closing date 15th August 1984.

Colleges and Departments of Art

Royal College of Art

Applications are invited for the following posts in the School of Textile Design at the College.

1. A 2-day a week Visiting Professor to provide academic leadership in the School of Textile Design. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

Further details and application forms may be obtained from the Deputy Registrar, Royal College of Art, Kensington, London W8 5AH. Closing date 15th August 1984.

DUNCAN OF JORDANSTONE COLLEGE OF ART

Applications are invited for the undernoted posts in the stated schools:

- School of Food and Accommodation Management - Senior Lecturer "A"** (£12,777/£16,104) in Applied Science. The successful candidate will be in charge of the Applied Science and Health Section of the School of Food and Accommodation Management and will participate in planning and teaching of the proposed Degree in Food and Accommodation Studies. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.
- School of Design - Lecturer "A"** (£8,688/£12,777) in Interior Design. Applicants for the full-time lecturing post in the Interior Design Main Study of the BA(Hons) course in Design should have a Degree in Architecture, or Interior or Environmental Design, and have some years of professional experience, together with a genuine enthusiasm for teaching. Expertise in Furniture Design and/or computer aided design will be particularly welcome.
- Library - 2 Assistant Librarians (Qualified)** (£7,989/£11,358). Applicants for these posts in the busy College Library must be Chartered Librarians. Apart from normal library duties, one post encompasses responsibility in the subject specialisations of Planning, maps and HMSO, whilst the other post concerns subject specialisations in Architecture, Building, Technical Information and the Standards Collection, together with research of computer usage.

Further particulars and application forms for each of the above posts may be obtained from the Secretary (Department D), Duncan of Jordanstone College of Art, Perth Road, Dundee, Tel: (0582) 23261, to whom completed forms should be returned not later than Friday 17th August 1984.

LIVERPOOL POLYTECHNIC

LECTURER II/SENIOR LECTURER IN BIOCHEMISTRY

Applications are invited from well qualified graduates having a first degree in Biochemistry, Molecular Biology or a closely related discipline. Applicants must possess post-graduate experience in Biochemical Genetics and/or Information Technology and will be expected to teach to Honours degree level. The successful candidate will be required to pursue research and perform departmental administrative duties. Previous applicants need not reapply.

Salary £7,215-£13,443.

For further particulars and an application form contact the Personnel Officer, Liverpool Polytechnic, Rodney House, 70 Mount Pleasant, Liverpool L3 5UX. Tel: 051-207 3581 ext. 2518. Closing date is 14 days from the appearance of this advertisement.

Liverpool Polytechnic is an Equal Opportunity Employer and welcomes applications irrespective of race, sex, marital status or disability.

(10882)

Urban Estate Management and Quantity Surveying

HEAD OF DEPARTMENT (GRADE VI)

Applications are invited for the above post to take effect from 1 January 1985 or earlier if possible. Candidates should be capable of exercising strong academic leadership of a department which offers an Honours degree in Quantity Surveying and a degree in Urban Estate Management.

Further details and application forms are obtainable from: The Personnel Office, The Polytechnic of Wales, Pontypridd, Mid Glamorgan, CF37 1DL. Tel: (0449) 408133 ext. 2021. Closing date: 10 August 1984.

Ref: 70039

The Polytechnic of Wales

Bristol Polytechnic

Town & Country Planning Department

PART-TIME LECTURER IN PLANNING TECHNIQUES

The Department offers a wide range of courses and is seeking to appoint a part-time lecturer to contribute to the teaching of planning techniques. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Bristol Polytechnic, Clifton, Bristol, BS8 3PH. Tel: (0284) 23261. Closing date: 10 August 1984.

Bristol Polytechnic

Library

SUBJECT LIBRARIAN

Ref No L/62

A graduate qualified for this post which will be based at the Polytechnic's main campus in Clifton. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

Salary Scale: £11,568 - £13,443 p.a. Applications should be sent to the Deputy Registrar, Bristol Polytechnic, Clifton, Bristol, BS8 3PH. Closing date 15th August 1984.

TEMPORARY LECTURER IN MATHEMATICS

Ref No A/5/84

Applications are invited for the above post from graduates in Mathematics or related disciplines. The post will be for a period of 10 weeks, starting in September 1984. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Bristol Polytechnic, Clifton, Bristol, BS8 3PH. Closing date 15th August 1984.

Newcastle upon Tyne Polytechnic

School of Business Administration

LECTURER II IN OFFICE ADMINISTRATION

Ref No A/32/84

Applications are invited for the above post which will involve the teaching of Office Administration, Keyboarding and Word Processing. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Newcastle upon Tyne Polytechnic, Newcastle upon Tyne, NE1 8ST. Closing date 15th August 1984.

North Staffordshire Polytechnic

Faculty of Business, Humanities and Social Sciences

FACULTY ADMINISTRATIVE ASSISTANT

Ref No L/65

Applications are invited for the above post to join a small team of administrative assistants. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, North Staffordshire Polytechnic, Stoke-on-Trent, ST4 2DQ. Closing date 15th August 1984.

The Hatfield Polytechnic

School of Engineering

RESEARCH ASSISTANT

Ref No L/66

Applications are invited for the above post to join a research team in the School of Engineering. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Hatfield Polytechnic, Hatfield, AL9 8QJ. Closing date 15th August 1984.

Polytechnic of Central London

Faculty of Social Sciences and Business Studies

LECTURER II IN POLITICS

Ref No L/67

Applications are invited for the above post to join a team of lecturers in the Faculty of Social Sciences and Business Studies. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Polytechnic of Central London, Uxbridge, Middlesex, UB8 3PH. Closing date 15th August 1984.

Newcastle upon Tyne Polytechnic

Faculty of Humanities

TEMPORARY PART-TIME LECTURER IN HUMAN GEOGRAPHY

Ref No L/68

Applications are invited for the above post from graduates in Geography or related disciplines. The post will be for a period of 10 weeks, starting in September 1984. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

Newcastle upon Tyne Polytechnic

Faculty of Business and Management

LECTURER II IN MATHEMATICS

Ref No L/69

Applications are invited for the above post from graduates in Mathematics or related disciplines. The post will be for a period of 10 weeks, starting in September 1984. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Newcastle upon Tyne Polytechnic, Newcastle upon Tyne, NE1 8ST. Closing date 15th August 1984.

TEMPORARY LECTURER IN MATHEMATICS

Ref No A/5/84

Applications are invited for the above post from graduates in Mathematics or related disciplines. The post will be for a period of 10 weeks, starting in September 1984. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Newcastle upon Tyne Polytechnic, Newcastle upon Tyne, NE1 8ST. Closing date 15th August 1984.

Colleges of Further Education

City of Salford

SALFORD COLLEGE OF TECHNOLOGY

DEPARTMENT OF CONSTRUCTION AND SURVEYING

LECTURER/ SENIOR LECTURER IN QUANTITY SURVEYING

Ref No L/70

Applications are invited from Graduate or Chartered Quantity Surveyors to teach on a range of courses including the College Diploma in Quantity Surveying and BTEC Building Studies Certificate and Diploma. The appointment is from 1 January 1985 or earlier if possible.

Salary scale will be in accordance with the Burnham FE scales for Teachers in Establishment of Further Education, viz:

Lecturer Grade II - £7,215-£11,568 per annum (under review)

Senior Lecturer - £10,683-£13,443 per annum (under review)

with grade and starting salary dependent on qualifications and experience.

Application forms and further particulars available from the Principal, Salford College of Technology, Frederick Road, Salford M6 6PU. Tel: 061 736 6541.

Polytechnic of the South Bank

London Road, London SE1

Department of Law & Government

ASSOCIATE LECTURER (0.9)

Ref: LW.01

TEMPORARY (ONE-YEAR) LECTURER II IN LAW

Ref: LW.02

The successful applicant will be expected to teach on a range of courses including the College Diploma in Quantity Surveying and BTEC Building Studies Certificate and Diploma. The appointment is from 1 January 1985 or earlier if possible.

Salary will be paid in the following range: £7,215-£11,568 p.a. (under review)

with grade and starting salary dependent on qualifications and experience.

Application forms and further particulars available from the Principal, Polytechnic of the South Bank, London Road, London SE1. Tel: 01-403 6541.

Colleges and Institutes of Higher Education

HUMBERSIDE COLLEGE OF HIGHER EDUCATION

Academic Secretariat

ADMINISTRATIVE ASSISTANTS (2 posts)

Ref No L/71

Applications are invited for the above posts to join a team of administrative assistants. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Humberside College of Higher Education, 605 WYV. Closing date 15th August 1984.

Southampton College of Higher Education

Faculty of Technology

TEMPORARY LECTURER II/ SENIOR LECTURER IN MECHANICAL/ PRODUCTION/ ENGINEERING

Ref No L/72

Applications are invited for the above post from graduates in Mechanical or related disciplines. The post will be for a period of 10 weeks, starting in September 1984. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Southampton College of Higher Education, Southampton, SO9 4WV. Closing date 15th August 1984.

S. Martin's College of Higher Education

Lancaster

PART-TIME LECTURER IN DRAMA

Ref No L/73

Applications are invited for the above post from graduates in Drama or related disciplines. The post will be for a period of 10 weeks, starting in September 1984. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, S. Martin's College of Higher Education, Lancaster, LA1 4YW. Closing date 15th August 1984.

Colleges and Institutes of Technology

LOTHIAN REGIONAL COUNCIL

DEPARTMENT OF EDUCATION

NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY

Administrative Officer (Examinations)

Ref No L/74

Applications are invited for the above post to join a team of administrative officers. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Napier College of Commerce and Technology, Edinburgh, EH10 1DT. Closing date 15th August 1984.

Research Assistant in Educational Information Technology

Ref No L/75

Applications are invited for the above post to join a research team in the Department of Education. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Napier College of Commerce and Technology, Edinburgh, EH10 1DT. Closing date 15th August 1984.

Colleges of Further Education

City of Salford

SALFORD COLLEGE OF TECHNOLOGY

DEPARTMENT OF CONSTRUCTION AND SURVEYING

LECTURER/ SENIOR LECTURER IN QUANTITY SURVEYING

Ref No L/76

Applications are invited from Graduate or Chartered Quantity Surveyors to teach on a range of courses including the College Diploma in Quantity Surveying and BTEC Building Studies Certificate and Diploma. The appointment is from 1 January 1985 or earlier if possible.

Salary scale will be in accordance with the Burnham FE scales for Teachers in Establishment of Further Education, viz:

Lecturer Grade II - £7,215-£11,568 per annum (under review)

Senior Lecturer - £10,683-£13,443 per annum (under review)

with grade and starting salary dependent on qualifications and experience.

Application forms and further particulars available from the Principal, Salford College of Technology, Frederick Road, Salford M6 6PU. Tel: 061 736 6541.

Colleges and Institutes of Higher Education

HUMBERSIDE COLLEGE OF HIGHER EDUCATION

Academic Secretariat

ADMINISTRATIVE ASSISTANTS (2 posts)

Ref No L/77

Applications are invited for the above posts to join a team of administrative assistants. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Humberside College of Higher Education, 605 WYV. Closing date 15th August 1984.

Southampton College of Higher Education

Faculty of Technology

TEMPORARY LECTURER II/ SENIOR LECTURER IN MECHANICAL/ PRODUCTION/ ENGINEERING

Ref No L/78

Applications are invited for the above post from graduates in Mechanical or related disciplines. The post will be for a period of 10 weeks, starting in September 1984. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures. The successful candidate will be required to have a minimum of five years' experience in the design of structures.

For further details and application forms, please contact the Deputy Registrar, Southampton College of Higher Education, Southampton, SO9 4WV. Closing date 15th August 1984.

S. Martin's College of Higher Education

Lancaster

PART-TIME LECTURER IN DRAMA

Ref No L/79

